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REMEDIAL ACTION REPORT
NORTHERN TOWNSHIP WATER SYSTEM
Northern Township
Beltrami County, Minnesota

July 1990

HOWARD NEEDLES TAMM & BERGEN LLP
ARCHITECTS ENGINEERS PLANNERS

HNTB

171877

REMEDIAL ACTION REPORT
NORTHERN TOWNSHIP WATER SYSTEM
Northern Township
Beltrami County, Minnesota

Prepared for:

Minnesota Pollution Control Agency

Prepared by:

Howard Needles Tammen & Bergendoff

July 1990

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Certification of Completion
Northern Township Water System

I hereby certify that the remedial action described in this report was completed on June 15, 1990. The work included the construction of approximately 29,640 linear feet of watermain and all appurtenances, services to 198 residences and businesses in the affected area, a new one hundred twenty seven foot deep well and a new Wellhouse.

The system is operational and meets the requirements of remedial action.

Gerald D. Willet
Commissioner
Minnesota Pollution Control Agency

8/31/90
Date

Valda V. Staunty
Regional Administrator
Environmental Protection Agency

9/04/91
Date

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REFERENCE DOCUMENTS

These documents are on record at the Minnesota Pollution Control Agency Office, 520 Lafayette Road, St. Paul, Minnesota 55155.

- Record of Decision, June 1985
- Remedial Investigation Report, January 1990
- Contract Documents (Plans and Specifications)
 - Phase I - Watermain
 - Phase II - Watermain
 - Phase I - Service Line Installation
 - Phase II - Service Line Installation
 - Well No. 3
 - Wellhouse No. 3
- All invoices for contracts for services rendered including construction contracts
- All correspondence

ABSTRACT

In 1985 a water supply and distribution system was proposed to provide potable water to the residents and businesses of Northern Township, Beltrami County, Minnesota. Howard Needles Tammen & Bergendoff prepared the contract documents on behalf of the Minnesota Pollution Control Agency.

The remedial action involved the construction of approximately 29,640 linear feet of watermain, a new well and wellhouse and service connections to 198 residences and businesses under seventeen separate contracts.

The total construction costs of the Construction Contracts, Construction Oversight, Administration and other construction related work is \$2.01 million.

INTRODUCTION

In 1985 a water supply and distribution system was proposed to provide potable water to the residents and businesses of Northern Township, Beltrami County, Minnesota (Figure 1). Design began in 1986 and construction was completed in June 1990. The Northern Township water system response action provides a permanent remedy to the contaminated domestic water supply.

The Northern Township area residents used individual wells to supply their domestic water needs. Most privately owned wells were shallow (5-30 feet deep). The soils in the area are predominantly very porous sand and gravel. In 1982, when monitoring wells at the Kummer Landfill which is also located in Northern Township indicated the presence of contaminants, a program for testing private wells in the area was initiated.

In 1984, test results of water samples collected from residential wells revealed contamination of ground water in the area southeast of the landfill. The groundwater was contaminated by hazardous substances, pollutants and contaminants released from wastes deposited in the Kummer Sanitary Landfill. Residents in the area of contaminated water were advised by the Minnesota Department of Health (MDH) to use another source of water for consumption. A remedial investigation was begun by Minnesota Pollution Control Agency (MPCA) and a temporary alternative water supply was provided to the residents in the area of contaminated ground water. A brief history of the investigations and the results are included in "Health Assessment for Kummer Sanitary Landfill Northern Township, Minnesota, CERCLIS No. 05MND980904049", published June 27, 1989. That report is included as Appendix A of this report.

As a result of the preliminary remedial investigation the U.S. Environmental Protection Agency (EPA) and the MPCA agreed to participate in the construction of the Northern Township Water System to remedy the contaminated Northern Township domestic water supply. The Record of Decision (ROD) was issued June 12, 1985.

The Northern Township Water System construction project was jointly funded through the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), Minnesota Environmental Response and Liability Act (MERLA), the City of Bemidji and

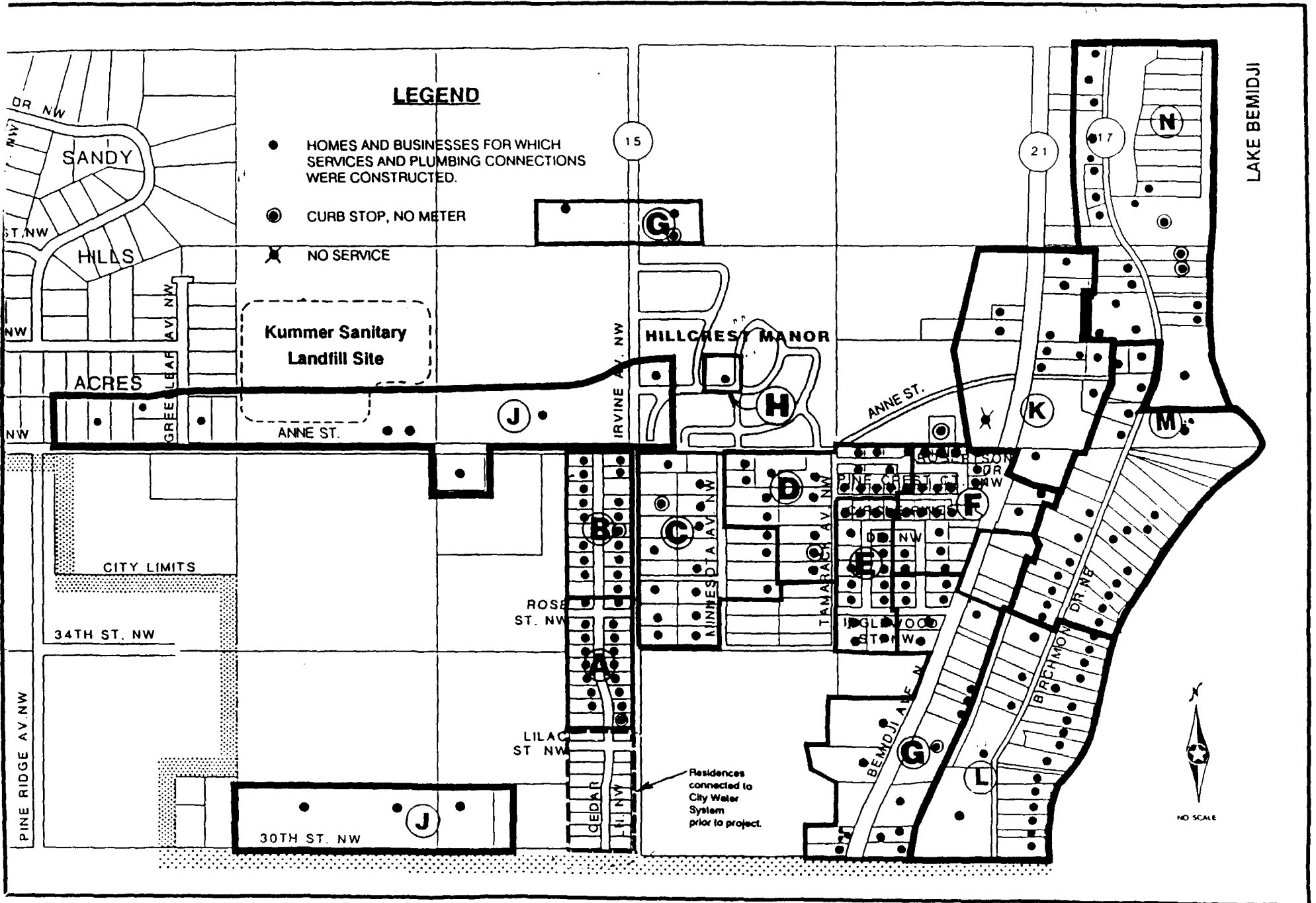


FIGURE 1

Northern Township. One hundred percent of the Northern Township design costs were funded through CERCLA. Ninety percent of the Water System construction costs were also funded through CERCLA and the remaining 10 percent of the construction costs were jointly funded by MERLA, the City of Bemidji and Northern Township. Project management of the Northern Township Water System construction project was provided by the MPCA.

On April 10, 1985 Northern Township agreed to finance 10 percent of the construction costs, (Chairman Ghostley letter, Appendix B-1). The actual payment schedule, water system ownership transfer to Northern Township, and other related associated responsibilities were detailed in a Memorandum of Agreement (MOA) between the MPCA and Northern Township executed on November 28, 1989 (Appendix B-2).

Following receipt of Northern Township's April 10, 1985 letter, Howard Needles Tammen & Bergendoff (HNTB) was retained by the MPCA to prepare a report that detailed feasible alternatives to abate or remedy the contaminated domestic water supply. (Feasibility Study) The Feasibility Study, completed in May 1986, described several water supply remedies and product cost estimates for each alternative. HNTB was authorized to prepare a design for a water supply and distribution system in Northern Township (Remedial Design).

REMEDIAL DESIGN

The Northern Township Water Supply and Distribution System project was designed by Howard Needles Tammen & Bergendoff (HNTB) consultants for the MPCA following acceptance of the design proposal by the USEPA in a (6-12-85) Record of Decision. The original plan for the Northern Township Water Supply and Distribution System included two (2) water supply wells, pumps, wellhouse, water tower, water distribution lines (watermains) and individual service connections. Plans for the watermain were developed and field investigations for individual service connections were begun.

Final design of the Northern Township Water System Supply and Distribution System consisted of a well, pump, wellhouse and integrated chemical treatment and power supply systems (water supply), water distribution lines (watermains) and individual home owner or business service connections (distribution system).

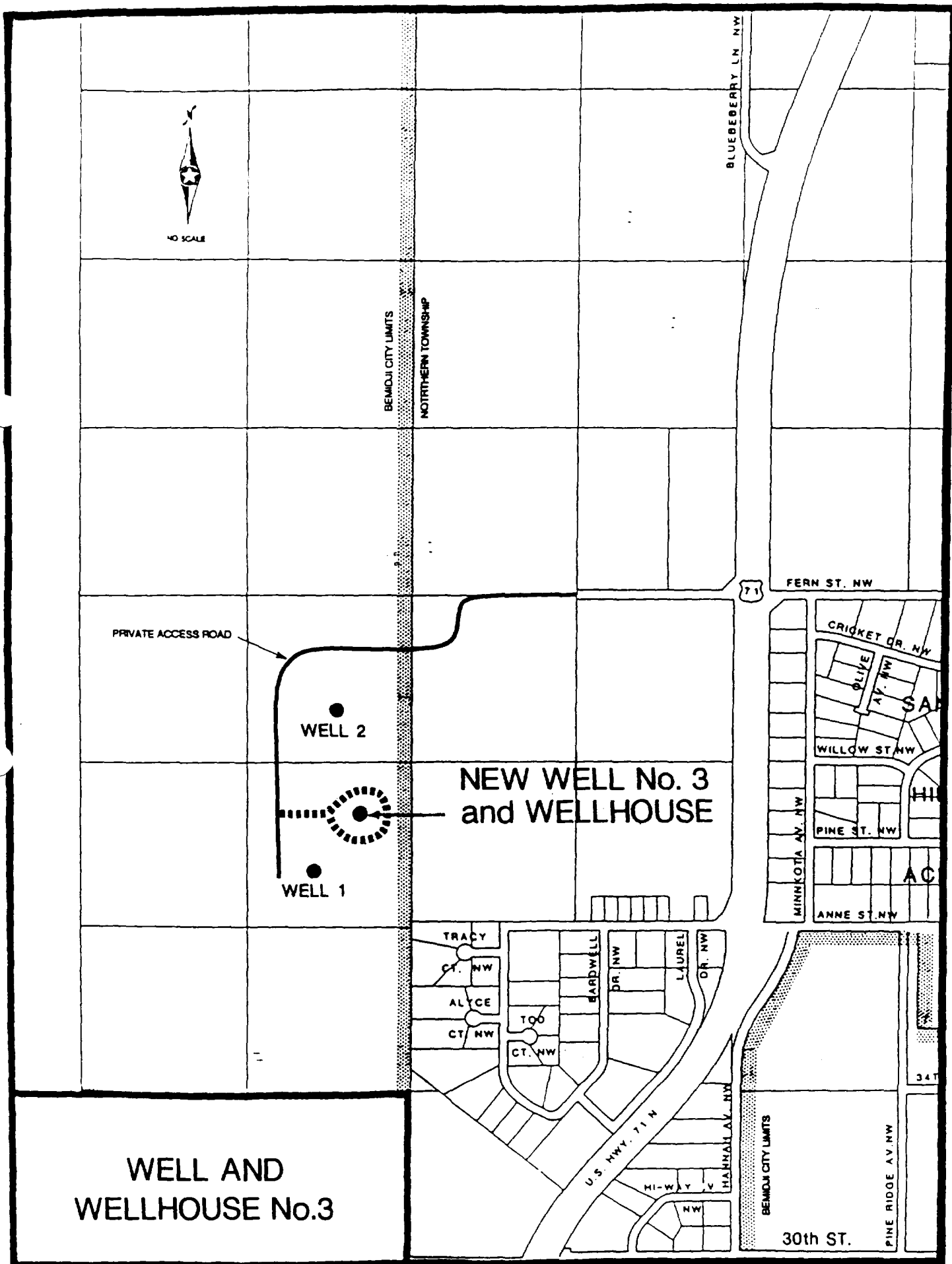


FIGURE 2

SYSTEM DESIGN CHANGES

Late in the design period, representatives from Northern Township and the City of Bemidji continued discussions on the possibility of extending the existing City of Bemidji's water distribution lines into Northern Township in the area of contaminated water. An agreement between the township and the city was reached (Appendix B-3). The Northern Township and the City of Bemidji jointly owned water system resulted in a major design change that ultimately reduced construction costs. It also provided the additional benefit of using the existing City of Bemidji personnel to operate and maintain the system. The interconnection system change is reflected in the amended Record of Decision signed by U.S. EPA and MPCA on September 2, 1988.

The construction of the Northern Township Water Distribution System was divided into two phases. Phase I watermain construction encompassed the residential area of Northern Township containing the most severely contaminated groundwater and the area where pipe diameters of the watermain would remain the same regardless of the water supply location. The individual service line connections for Phase I were divided into groups designated A through G.

Phase II was redesigned once the well location was determined and the connection alternative was approved by all; Northern Township, City of Bemidji, MPCA, and EPA. Well No. 3 location is shown on Figure 2. Phase II watermain construction encompassed the less severely contaminated area of groundwater with the individual service line connections which were divided into groups designated H through N. The individual groups are indicated in Figure 1.

The water supply (Well and Wellhouse No. 3) was located by HNTB's subconsultant Barr Engineering after a hydrogeologic investigation. It was located in the existing well field on Bemidji-Beltrami County Airport property. The water supply is operated and monitored by the City of Bemidji.

All plans, specifications and other contract documents were reviewed by the Corps of Engineers, the U.S. EPA, the MPCA and State Administration personnel.

Permits for the construction of the water supply were obtained from the Federal Aviation Administration (FAA) and the Minnesota Department of Health (MDH).

PROCUREMENT

Seventeen separate bid specifications were prepared to meet the requirements of the U.S. EPA and the State of Minnesota superfunds. The construction contracts were awarded to the lowest responsible bidder who responded to the Public Notice of the (proposed) construction activities. The proposed contracts were advertised in the Construction Bulletin, local newspapers and were available for review in four Builders Exchange offices and at the Dodge Report office. The primary contractors who performed the construction work are listed in Table 1 along with the construction bids and costs. All contracts were awarded to Bemidji area contractors.

CONSTRUCTION AND OVERSITE

The first construction contract in this project was awarded in August of 1987. HNTB was retained by the MPCA to be responsible for construction oversight. HNTB subcontracted to a local, Bemidji area engineering firm for daily on-site inspection of all water distribution construction activities. Oversight of the well drilling construction was subcontracted to Barr Engineering. HNTB obtained the permits and approvals necessary for construction, administered the contracts and performed overall construction management.

During construction, the oversight inspectors from HNTB and Haack Engineering monitored the work to make sure it conformed to the contract documents. The oversight inspectors performed construction observation, soil density tests, and pressure tests on the watermain and service lines as well as answering inquiries from residents as work was progressing. Service line installations to the individual homes and businesses were often arranged by the on-site inspector as well.

Requests for payment for work performed by the contractors were submitted to the oversight engineer for verification and approval. The verified invoice requests were then sent to the MPCA for their approval and payment.

NORTHERN TOWNSHIP CONSTRUCTION CONTRACT BIDS and COSTS

	CONTRACT AWARDED TO	AMOUNT AWARDED		OTHER BIDS	ACTUAL PAYMENTS
PHASE 1					
WATERMAIN	CHRISTIANSEN	\$597,611.50	\$606,476.76	\$661,709.60 \$682,231.90	\$553,558.62
A	WES's	\$14,935.00	\$33,150.00		\$14,885.00
B	WES's	\$14,935.00	\$33,150.00		\$14,910.00
C	DICK's	\$35,945.00		\$34,945.00
D	DICK's	\$18,995.00	\$19,800.00	\$41,400.00	\$18,545.00
E	WES's	\$26,800.00	\$40,670.00		\$26,400.00
F	WES's	\$22,800.00	\$45,250.00		\$21,775.00
G	WES's	\$37,800.00	\$65,285.00		\$48,010.00
G	supp	\$11,910.00			
		\$769,821.50			\$733,028.62
PHASE 2					
WATERMAIN	CHRISTIANSEN	\$628,133.10	\$644,327.50	\$711,487.25 \$722,417.25	\$568,854.94
H	DICK's	\$6,826.00	\$18,000.00		\$7,358.00
H	supp	\$532.00			
J	DICK's	\$14,894.00	\$19,110.00	\$23,900.00	\$16,268.00
J	supp DICK's	\$1,524.00			
K	DICK's	\$20,278.60	\$21,390.00	\$25,800.00	\$17,942.20
L	DICK's	\$41,323.25	\$69,600.00	\$73,150.00	\$41,023.25
M	WES's	\$48,850.00	\$54,800.00	\$75,343.00	\$48,440.00
N	DICK's	\$43,934.60	\$49,725.00	\$54,400.00	\$41,010.00
		\$804,239.55			\$740,896.39
WELL	NORTH STAR	\$91,700.00	\$89,835.00 *	\$108,110.00 \$117,990.00	\$96,070.00
WELL	supp	\$6,370.00			
WELLHOUSE	FOSSTON	\$134,474.00	\$137,700.00	\$146,920.00 \$150,527.00	\$131,718.25
WELLHOUSE	supp	\$2,331.00			
					TOTAL BID \$1,800,235.05
					TOT CONTRACT \$1,822,902.05
					TOTAL COST \$1,701,713.26

*LAYNE 'S submittal did not meet all MN State requirements
Contract awarded to North Star Drilling at second low bid
"supp" indicates supplemental agreement

*LAYNE 'S submittal did not meet all MN State requirements
 Contract awarded to North Star Drilling at second low bid
 "supp" indicates supplemental agreement

Water service connections with corporation stops and curb stops and curb boxes were installed as part of the watermain construction where designated on the plans. However, in some cases a new business or residence had been built or located on a property between preparation of the plans and the time of construction. In those cases the water services with corporation stops and curb stops and boxes were installed during construction. Water service connections to homes and businesses built within the project area after construction of the watermain were to be connected to the system by the owner. This policy was consistent with the 1985 ROD.

One hundred and ninety-eight (198) water service connections to businesses and homes in Northern Township were installed. In ten (10) locations throughout the project area the residents refused the service installation. These locations are indicated on Figure 1 and identified on Table 3 Appendix B.

Northern Township being located in northern Minnesota experiences long winters which severely limit the construction season. For this project the highest priority was to supply the residents with potable water. Construction contractors were authorized to begin construction of the watermain or services first. Construction of pavement, landscaping and other restoration was left to be completed at the end of project construction. Several of the project contracts were constructed over two construction seasons. Construction of the well and wellhouse were completed and systems put in use by January 1990. Outside restoration was completed during May of 1990. The final service line connections were completed in June of 1990.

FIELD CHANGES

During construction of the watermain, minor location changes were made to avoid gas lines or to relocate hydrants and curbstops for the residents convenience. Coordination with the City of Bemidji along 30th Street and with Beltrami County Highway Engineering Department eliminated the costs of some street repair scheduled and specified in the contract documents.

Cedar Lane pavement restoration changes were made when the actual depth of the existing pavement was found to be thicker than anticipated. Removing the entire street and replacing it was both better structurally and cheaper than bringing the disturbed area to grade and overlaying the entire street with a new blacktop surface.

During construction of Phase II, the location of one of the watermain loop connections between Birchmont and Bemidji had to be changed. The required agreements between the property owners and the MPCA could not be obtained. Therefore, the loop was redesigned and constructed in a new location.

During the construction of water service installations some residents refused service connection. During work on Irvine Avenue two residents requested that they have service connections earlier than planned. Their water supplies had shown high levels of contamination. A change order was written to include three residences into the existing contract for Group G. At one address in Group J the house was vacated and a new trailer moved onto the site. This involved additional length of service line and construction of below grade meter pit.

Changes in the well contract included fifty-five more hours of development time than estimated in the contract documents. There were several items in the contract which were less than the estimated quantity, and therefore the final contract amount was only \$4,370 over the amount bid.

Changes in the construction contract documents of the wellhouse included the revised requirements for tapping into the existing 16" water line at the well field. The owner indicated that the existing pipe was ductile iron. When the pipe was uncovered it was Reinforced Concrete Cylindrical Pipe. Special equipment and techniques were required for the connection to this pipe. This resulted in a contract change order and a contract increase.

The contractor constructed the generator plug and the road in different locations from the design locations at the request of the City of Bemidji. There was no increase in contract amount due to these changes.

The total wellhouse construction amount was less than the contracted amount because less area was disturbed during construction and therefore less restoration was needed.

COORDINATION

The decision to divide the project into seventeen (17) separate contracts created additional administrative duties. However, the construction was continued in a logical order and cooperative manner. All seventeen contracts were awarded to local area companies. This was an asset to the local economy.

Due to the number of agencies, governmental bodies, and owners involved with this project, cooperation and coordination was necessary throughout the duration of the project.

Both the design and construction were coordinated with the Beltrami County Highway Department Engineering office and the City of Bemidji. Since Phase I of the project involved work along two major county roads, Bemidji and Irvine Avenues, lines placed under those highways required approval and cooperation. Phase II of the project included watermain construction along Anne Street. The watermain construction was coordinated with the proposed county highway project of widening and reconstruction of Anne Street. Careful coordination eliminated the costs of pavement restoration at several intersections and decreased the total construction cost (see Table 1). A similar cooperative effort was made with the City of Bemidji along 30th Street. The 30th Street portion of the watermain project was coordinated with the paving project being constructed by contractors for the City. That coordination also decreased the total construction cost of Phase II.

Both Phase I and Phase II watermains were constructed by the same contractor, Christiansen Industrial Developers. The work by the plumbers Wes's Plumbing & Heating, and Dick's Plumbing & Heating had to be coordinated with Christiansen's work. The plumbers work also had to be coordinated with the individual homeowners in order to gain access to the homes to complete the installation.

The construction of the watermain also involved coordination with the utility companies. The contractor and the phone company cooperated to support the power poles on the project. The natural gas company was less cooperative and the contractor had to support the gas main himself to prevent delays. These efforts eliminated a ten thousand dollar (\$10,000) relocation charge proposed by the gas company.

As-built drawings have been prepared for Phase I and Phase II watermains and for the wellhouse. Copies of the as-built drawings will be provided to the City of Bemidji and the Northern Township Board upon acceptance of the Northern Township Water System response action remedy. The welldriller's logs were collected and submitted to the MDH and to the City and Township for their records.

HNTB collected and approved Operation and Maintenance manuals for Well No. 3 and Wellhouse No. 3 and the integrated equipment. These manuals were provided to the anticipated water system owners.

PRE-FINAL AND FINAL INSPECTIONS

PRE-FINAL INSPECTION

A prefinal inspection was conducted on April 5, 1990. (Representatives from EPA, MPCA, the consulting engineers HNTB and Haack, Northern Township and the City of Bemidji were present. The construction of Wellhouse No. 3 was not complete at that time. The telemetry cable had not been buried and the access road and turf restoration were not completed. The control system and the well had been operating since January. However, there were several items inside the wellhouse which required alteration prior to final approval. They included:

- Install Emergency Generator Plug
- Louvers needed rewiring
- Paint doors and frames
- Touch-up painting and caulking
- Seal concrete floor

The construction of Phase I and II watermains and all water service installation groups were completed except Group H (Hillcrest Manor mobile home park) and Group J (six hookups remained to be installed). A brief field report of that inspection is included in Appendix D-1.

FINAL INSPECTION

The final inspection was conducted on June 18, 1990. Representatives from USEPA, MPCA, Northern Township, the City of Bemidji, HNTB, Haack Engineering and a citizen were present.

All items identified in the Pre-final Inspection of Wellhouse No. 3 had been completed and were approved. The Final Invoice for the wellhouse construction contract was submitted for review and approval.

The installation of the water service for Hillcrest Manor mobile home park (Group H) was inspected and determined complete.

The service lines to each of the six remaining locations in Group J were determined complete.

Approximately one week before the scheduled final inspection of the Northern Township Water System the Northern Township Board requested comments or complaints from its residents regarding the connection process or restoration work. A copy of their letter with that request is attached (Appendix D-3).

As a result of that letter several homeowners contacted either the township or the MPCA with complaints about restoration of their yards. Several hours of the Final Inspection were spent visiting the sites of those complaints (Appendix D-2). Even though all of these sites were part of construction contracts completed and approved in 1987, 1988 and 1989 the contractor agreed to continue working on site restoration. At completion of the contracts, the restoration was determined to meet the contract documents. In many cases, the owners had signed a release indicating satisfaction with the work completed prior to contract close out.

EASEMENTS

The location of watermain was predominantly on public right-of-way, therefore easements were not required. However, one residential development is located in the project area but does not have public right-of-way, with streets privately owned by the residents. There were also three watermain loop connections between the watermain on Birchmont Drive and the watermain on Bemidji Avenue. Access agreements were obtained prior to construction of the loop connections.

These privately owned areas necessitate the need to obtain twenty-one (21) easements from property owners. Work on obtaining these easements continues.

COSTS

The cost estimate for construction of the Northern Township Water Supply and Distribution System as estimated in the 1986 Feasibility Study was \$1,653,294 (\$1.65 million).

The actual construction cost was \$1,701,713 (\$1.70 million). This included \$1,122,414 for construction of 29,640 linear feet of water main including all appurtenances and restoration; \$351,511 for hook-up of water services at 198 locations; and \$227,780 for the construction of a 127 foot deep well producing 1,500 gpm, the wellhouse and all appurtenances. Further breakdown is shown in Table 1. The total cost of this project which includes Feasibility Study, Design and Administration, Construction, Construction Oversight, Repair and Restoration, MPCA Administration, Remedial Action Report, Easements, and Operation and Maintenance is approximately \$2.34 million. The distribution of those costs are shown in Table 2. The total cost to be included as Remedial Action Costs is approximately \$2.01 million. The distribution of the charges has been determined in the Memorandum of Agreement between the MPCA and Northern Township.

**NORTHERN TOWNSHIP WATER SYSTEM
TOTAL PROJECT COSTS**

	CONSULTANT	SUBCONSULTANT	TOTAL COSTS
FEASIBILITY STUDY			
	HNTB	\$59,998	
TOTAL		\$59,998	\$59,998

A DESIGN and ADMINISTRATION

DESIGN PHASE				
	HNTB	\$162,059		
		TCT*	\$7,000	
		S & W*	\$1,335	
		BARR*	\$78,193	
MPCA ADMINISTRATION				\$26,802
TOTAL		\$162,059	\$86,528	\$26,802
				\$275,389

B CONSTRUCTION COSTS

CONSTRUCTION CONTRACTS

WATER SERVICE			
WATER MAIN			
PHASE I		\$553,559	
PHASE II		\$568,855	
SUBTOTAL		\$1,122,414	
SERVICE CONNECTIONS			
PHASE I		\$179,470	
PHASE II		\$172,041	
SUBTOTAL		\$351,511	
TOTAL		\$1,473,925	\$1,473,925

WATER SUPPLY			
WELL NO 3		\$96,070	
WELLHOUSE NO 3		\$131,718	
TOTAL		\$227,788	\$227,788

*TCT TWIN CITY TESTING
 *S & W STEWART & WALKER
 *BARR BARR ENGINEERING
 *HAACK HAACK ENGINEERING

(continued on next page)

**NORTHERN TOWNSHIP WATER SYSTEM
TOTAL PROJECT COSTS**

B CONSTRUCTION COST continued				TOTAL
	CONSULTANT	SUBCONSULTANT		COSTS
<u>CONSTRUCTION OVERSITE</u>				
WATER SERVICE	\$51,040			
		HAACK*	\$98,600	
SUBTOTAL	\$51,040		\$98,600	\$149,640
WATER SUPPLY WELL NO 3	\$5,523			
		BARR*	\$18,981	
WELLHOUSE NO 3	\$6,014			
		HAACK*	\$3,000	
SUBTOTAL	\$13,923	HAACK*	\$21,981	\$35,904
TOTAL	\$62,577		\$120,581	\$183,158

REPAIR and RESTORATION

REPAIR	\$3,700
RESTORATION	\$5,000
TOTAL	\$8,700

MPCA ADMINISTRATION COSTS

PERSONNEL	\$65,426
INDIRECT	\$22,827
EXPENSES	\$4,249
TOTAL	\$92,502

REMEDIAL ACTION REPORT

REPORT	\$14,282	
TOTAL	\$14,282	\$14,282

EASEMENTS

TOTAL	\$3,000
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OPERATION and MAINTENANCE

TOTAL	\$7,177
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TOTAL PROJECT COSTS including DESIGN & FEASIBILITY STUDY	\$2,345,919
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TOTAL CONSTRUCTION RELATED COSTS	\$2,010,532
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CONCLUSION

The Northern Township Water Supply and Distribution System construction project as designed and approved is complete and operational. The construction included approximately 29,640 l.f. of watermain, a new 127 foot deep well producing 1,500 gpm, a new wellhouse and control system plus individual services to 198 residences and businesses. The project was completed under seventeen (17) separate construction contracts and included twenty two (22) separate bid openings. It involved cooperation by all those involved in the project.

Upon completion and approval of the construction, and upon execution of transfer documents incorporated herein and located in Appendix E, Northern Township will become the owner of the system. Joint Ownership and continued operation and maintenance of the Water Supply and Distribution System has been anticipated by an agreement between the City of Bemidji and Northern Township (Appendix B-3).

The completion of the construction of this project completes the operable Unit 1 of Kummer Landfill Remedial Action. Residents of the affected area have been provided with available safe potable water. The municipal wells will be monitored as required by the Minnesota Department of Health. The remedial action to eliminate or reduce the source of contamination is to be completed under a separate project and under a separate record of decision.

WP/8941/ACTION.REP2

APPENDICES

Health Assessment for

KUMMER SANITARY LANDFILL

NORTHERN TOWNSHIP, MINNESOTA

CERCLIS No. 05MND980904049

Agency for Toxic Substances and Disease Registry
U.S. Public Health Service

June 27, 1989

HEALTH ASSESSMENT FOR
KUMMER SANITARY LANDFILL
NORTHERN TOWNSHIP, BELTRAMI COUNTY, MINNESOTA

JUNE 27, 1989

Prepared for:
Agency for Toxic Substances and Disease Registry (ATSDR)

Prepared by:
Minnesota Department of Health (MDH)

Health Assessment for Kummer Sanitary Landfill

I. SUMMARY

The Kummer Sanitary Landfill is listed by the U.S. Environmental Protection Agency (EPA) on the National Priorities List (NPL). The landfill is in Northern Township, which is a residential community on the northern border of the town of Bemidji, Minnesota. The site began operation in 1971. In 1982 and 1983, contamination was noted in on-site monitoring wells. In 1984, contamination was found in residential wells to the southeast of the site. Studies conducted as part of the Remedial Investigation (RI) show that ground water flow is to the east, and that the contaminants are moving with the ground water. Most of the contaminants are volatile organic compounds (VOCs); vinyl chloride is the predominant compound.

An alternative water supply (connection to a municipal distribution system) has been provided for residents of the area of contaminated ground water. Some residences have refused connection to the alternate water. Work will begin in early 1989 to provide a cover for the landfill. The contaminated ground water will be addressed in the future. This site is of potential health concern because of the continued use of potentially contaminated water from private residential wells.

II. BACKGROUND

A. Site Location and Description

Northern Township is a residential community on the northern border of the town of Bemidji, Minnesota. It is located in Beltrami County, in the north central portion of the state. The town lays along the western border of Lake Bemidji, which is a large recreational lake (6,920 acres).

The Kummer Sanitary Landfill occupies 40 acres on the north side of Anne Street between U.S. 71 and Irvine Avenue N.W. On the east it is bounded by pasture, on the west by a new housing development, and on the north by woodlands, a wetlands and a small stream which flows east to Lake Bemidji. Lake Bemidji is about one mile directly to the east. On the south there is a road (Anne Street) and a pine woods. At about 1,000 feet to the southeast and beyond is a residential development. Approximately 1,500 feet directly east of the landfill is a trailer park. The site is not mounded, and is well bermed on all sides. The landfill was closed in 1985, and currently has a fairly good vegetative (weed) cover. There is no final cover or topsoil on the landfill, only sand.

The site is on glacial drift underlain by an igneous bedrock formation. This formation does not function as a productive aquifer except in fault zones. The glacial drift is an outwash plain formed by the Beltrami arm of Glacial Lake Agassiz. The outwash sediments in the region range from 200 to 500 feet thick. There are sand and gravel lenses and clay and/or silt lenses interbedded with the sands at a depth of 30 to 45 feet. These lenses appear to be discontinuous and are not confining units. The ground water in the sand aquifer is flowing east towards Lake Bemidji. Between the landfill and the lake, the ground water is under a hydraulic pressure head which serves to move the water vertically to the surface.

The Kummings were issued a permit by the Minnesota Pollution Control Agency (MPCA) to begin operation in 1971. During the years of operation, the dump accepted mixed municipal solid wastes from approximately 25,000 people. The material was deposited using a trench and fill technique; it is highly probable that material was placed in contact with the water table (Feasibility Study, FS, 1988). The landfill also contains buried demolition debris which consists mostly of fly ash and sawdust. There is a history of violations such as inadequate cover, blowing garbage and improper grading (according to MPCA files). Several monitoring wells were installed by the owner. No field notes or well logs were kept during well construction (Remedial Investigation, RI, 1988). The wells were improperly maintained and sampling data from these wells were improperly recorded. Historically, much of the data from these wells are in question.

In 1982 and 1983, ground-water contamination was detected in these on-site monitoring wells at the landfill. In June 1984, contamination was discovered in private water supply wells in the residential community southeast of the site. In August 1984, the Minnesota Department of Health (MDH) advised persons with contaminated wells to use another source of water for consumptive purposes. MPCA and MDH also mapped an advisory area surrounding the contaminated wells and MDH advised persons in this area to use alternative water. The advisory area is approximately from Cedar Street N.W. and east to Bemidji Avenue N., and from Anne Street N.W. south to 34th Street. Alternate water was made available at a nearby hospital. A community water supply, distributing water from the city of Bemidji, is currently under construction and will supply all homes in the affected area. The connection is being done in two phases, with those homes closest to the landfill (in the advisory area) connected by June 1988 (Phase I) and those farther east, closer to the lake, to be connected by September 1989 (Phase II). There are some residents (4) in the affected area who have refused connection to the municipal supply. By September 1989 all homes and businesses to the east of the landfill will be connected to the municipal water supply, with the exception of those who refuse connection.

Investigation and remediation of this site has been divided into three operable units. The first operable unit addressed the alternative water supply. A Record of Decision (ROD) was signed in June 1985 to allow construction of a municipal water supply distribution system from the City of Bemidji to the affected area east of the landfill. The second operable unit was source control of contaminants emanating from the landfill. The FS for this operable unit was complete in September 1988 and a ROD for a cover on the landfill was executed in September 1988. The final operable unit, movement of contaminants through the ground water, will be addressed in the future. A ROD for this operable unit is anticipated for 1989.

The following documents were provided to MDH for review:

Remedial Investigation Final Report for Kummer Sanitary Landfill, April 1988, Malcolm Pirnie.
Source Control Operable Unit Feasibility Study for Kummer Sanitary Landfill, September 1988, Malcolm Pirnie.
Source Control Operable Unit Proposed Plan for Kummer Sanitary Landfill, September 1988, Malcolm Pirnie.

These documents, in addition to a site visit, consultation with MPCA project staff, and information in MPCA and MDH files, form the basis for this Health Assessment.

B. Site Visit

A site visit was conducted by MDH staff on June 18, 1988 in conjunction with meetings with persons knowledgeable about the site (MDH District Office in Bemidji; Chairman of the Northern Township Board). Information gathered from the site visit is incorporated into this assessment. There were no significant findings on the site visit that should be noted here.

III. ENVIRONMENTAL CONTAMINATION AND PHYSICAL HAZARDS

Chemicals are included in this evaluation based on several considerations. These considerations are as follows: 1) MDH has developed Recommended Allowable Limits (RALs) for contaminants in private drinking water supplies. Chemicals included on this list are those most frequently found in ground water in the state. RALs for non-carcinogens are often taken from the drinking water health advisories published by EPA Office of Drinking Water (ODW). RALs for carcinogens are derived from the potency slopes from EPA Carcinogen Assessment Group (CAG) and reflect an estimated lifetime excess cancer risk of 1 in 100,000. Chemicals found in ground water at concentrations which exceed these RALs are included in this evaluation. 2) Chemicals which do not exceed the RALs may also present a hazard or potential hazard to public health based on site specific information and professional judgement. In the present case, numerous chemicals were detected in monitoring wells and several private wells. There is concern when there are low levels of many chemicals because of the unknown consequences of exposure to

mixtures. Future research data on health effects of mixtures of these chemicals may indicate a need for further evaluation. 3) Additionally, concentrations of chemicals leaching from landfills are unpredictable. Often they are released in pulses, and monitoring may reflect peak concentrations found during pulses or may reflect lower concentrations found between pulses. Therefore, some chemicals currently detected at low concentrations may be detected at much higher concentrations in future sampling events. Similarly, some chemicals may be present during the pulses and absent during the interim periods. Additionally, monitoring results may be impacted by the variability of glacial formations typical of Minnesota and the imprecise nature of hydrogeologic characterization. For these reasons, elimination of these chemicals from consideration was not warranted at this site.

A. On-Site Contamination

Chemicals from the Kummer Sanitary Landfill have leached into the ground water. Because construction and maintenance of these wells is in question, data from these wells is also in question. Monitoring wells installed for the RI were placed just off-site. Although ground water directly under the landfill is certainly contaminated, no reliable record of this contamination exists.

Results of soil samples taken at several locations around the landfill indicate that surface soil is not contaminated.

B. Off-Site Contamination

Maximum concentrations of organic contaminants found in off-site monitoring wells are presented in Table 1. The vast majority of these compounds are VOCs. Contamination was found only in wells to the south and east of the landfill. Upgradient (north and west) wells were uncontaminated.

Analysis of inorganic contaminants in monitoring wells showed high concentrations of some metals; those above EPA Secondary Water Quality Standards are iron at 19,500 ug/l; manganese at 1,100 ug/l and barium at 2,290 ug/l. Other metals found in the samples were calcium, magnesium and sodium. Heavy metals were not found in the samples.

Acetone and methylene chloride were also detected at high concentration (i.e., above guidelines) in many of the samples in both residential and monitoring wells. However, because these chemicals were also detected in high concentrations in the field blanks it is assumed they are present as laboratory contaminants.

Maximum concentrations of VOCs found in residential wells are also presented in Table 1. All of these residential wells are to the east of the landfill.

Samples taken at a 25-foot depth from a monitoring well placed at the edge of the wetlands contained 12 ug/l vinyl chloride, 3 ug/l chloroethane, and 5.2 ug/l trans-1,2-dichloroethene.

C. Physical Hazards

There are no apparent physical hazards associated with this site. There are some areas where garbage is uncovered, but this does not appear to pose a hazard. Access is not limited, but the site is unattractive, and no evidence of children playing on the landfill, such as dirt bike trails etc., was observed during the site visit.

IV. DEMOGRAPHICS OF POPULATION NEAR SITE

A. Population and Land Use

Northern Township has a population of approximately 4,100 (Northern Township Board Chairman, pers. comm.). The North Country Hospital is located south and west of the landfill, and it is connected to a municipal water supply. The Sandy Hills Acres subdivision (2 homes at present) borders the western edge of the landfill. The owner of the landfill lives on the southeast corner of the landfill property. A television station is located about 750 feet east of the landfill. A trailer park with 108 trailers is located approximately 1,500 feet east of the landfill. A residential community is located approximately 1,000 feet south and east of the landfill. There are about 90 single family homes in this area. The population in the areas east and southeast of the landfill (the area affected by the ground water contamination) is approximately 1,000 persons. Most homes are occupied by young families with children. There are several commercial properties located in the affected area, including a gravel pit, body shop and gas station. Municipal wells are south and west of the site and because of their location are not in danger of becoming contaminated from the site.

V. EVALUATION

A. Data Needs and Evaluation

1. Environmental Media

Data collection on this site is not yet completed. Analysis of the most recent ground-water samples has not been completed. Sampling of the wetlands, scheduled for 1988, was not undertaken because of low water levels in the wetlands during the drought. The next unit scheduled for evaluation is the ground-water contamination. In this investigation the lateral extent of the contaminant plume will be defined and remediation addressed. When the scheduled sampling is complete, a judgement will be made concerning adequacy of the data. At this time it appears that completion of the scheduled sampling protocol should adequately assess the extent of contamination in all media.

2. Quality Assurance/Quality Control (QA/QC)

Data supplied is adequate to conduct a Health Assessment at this site. The contractor states that sampling techniques and chain of custody procedures were in accordance with the Quality Assurance Project Plan (QAPP). EPA approved the QAPP on November 26, 1986. All samples were subjected to full hazardous substance list and water quality parameters (HSL, WQP) analyses. The laboratory used for analysis was an EPA Contract Laboratory Program (CLP) laboratory. Upon examination of the QA/QC information available in the RI, the analytical techniques are judged to be adequate. MDH and MPCA consider the data presented in the RI to be useful and of high quality.

3. Demographics and Land Use

The demographic information gathered on the site visit is adequate to assess the health effects of this site. If land use in the area were to change, or if private wells were to be installed east of the landfill, this assessment would not be valid.

B. Environmental Pathways

1. Ground Water

The site is located over an area of glacial outwash, comprised of clays, silts, sands and gravels. There is a fine sand layer present to a depth of 20 feet. There are discontinuous sand and gravel lenses and clay and/or silt lenses interspersed at depths of about 30 to 45 feet. These lenses act locally as confining units or conduits for ground water and contaminants. To the east of the landfill the ground water is under a hydraulic pressure head which moves the ground water up towards the surface. The ground-water flow direction is east to the lake. The hydraulic head appears to keep the contaminants in the upper 60 feet of the aquifer. The lenses make the occurrence of contamination very location-specific; one well may be heavily contaminated while a neighboring well may be clean. The well depth also effects the occurrence of contamination. Both the TV station and the trailer park wells are over 100 feet deep and are uncontaminated, despite the fact that they are in close proximity to the landfill.

At this time, the plume of contaminants extends an unknown distance beyond the easternmost monitoring well. This well is an estimated 2,500 feet east of the landfill. Ground-water flow velocities are calculated to be as much as 1.25 feet per day. The eastern extent of the plume is not known, but it is possible that the plume has already reached Lake Bemidji.

In this type of sandy soil, it is likely that the VOCs present in the landfill will readily leach into the ground water.

2. Surface Water

The site visit did not reveal the potential for runoff from the landfill to the wetlands. Shallow monitoring wells in the wetlands area (at 25 feet) were contaminated with vinyl chloride, trans-1,2-dichloroethene and tetrachloroethylene. Because the ground water to the east of the site rises vertically, water and sediments in the wetlands (adjacent north and north-east of the landfill) can potentially become contaminated during periods of high ground water. However, no wetlands surface water or sediment samples have been taken. Sampling is scheduled for a later date (i.e., when water levels are higher).

Lake Bemidji is approximately one mile east of the landfill. The contaminated ground water is moving east, and will eventually discharge to the lake. Additionally, water in the wetlands is moving eastward, and also discharges to the lake. The lake may eventually receive contaminants from both these sources.

3. Soil

Surface soil samples taken at several locations surrounding the landfill indicate no contamination of this media. A survey of the landfill during a site visit did not reveal any leachate seeps or areas likely to be contaminated from chemicals buried at the landfill. Because of the sandy nature of the soil in the area, pooling of precipitation is not expected to occur on the landfill. Additionally, the landfill is in an old gravel pit and some surficial depressions exist, so runoff is not expected. For these reasons, precipitation is expected to move chemicals down into the water table. Therefore, contamination of the surface soil of the landfill is not likely.

Sediments in the adjacent wetlands may be contaminated by rising ground water. These sediments are scheduled to be sampled at a later date, at a time of higher ground water levels.

4. Air

Air samples were taken at the site as part of the evaluation to select subsurface soil sampling sites. Monitoring was conducted with a photoionization detector, and no positive HNu readings were detected. Because volatiles are obviously present at this site, and are presumably uncontained, there is a possibility that VOCs may be present as gas emissions at this site. The fill in the landfill is gravel and dirt and is not expected to confine gases. Since there is no vertical confinement, horizontal migration of gases is not

expected to be of concern. When the landfill is capped, a gas control system will be placed to control gas emissions from the landfill (Source Control Operable Unit Proposed Plan, 1988 and MPCA staff, Pers. Comm)

5. Biota

Contaminated ground water from private wells may be used to water vegetables in home gardens. This activity is not expected to contribute significantly to contamination of vegetables for the following reasons; 1) The chemicals are volatile, 2) have short soil half-lives, and 3) will not adsorb strongly to soil (ATSDR, 1988), especially the sandy soil found in Northern Township.

There is potential for wild game in the wetlands to become contaminated if water or sediments are contaminated.

Although the contaminated ground water will eventually discharge to Lake Bemidji, given the size of this lake (6,920 acres; medium depth 34 feet, estimated volume 321,000 cubic meters), the contaminants are expected to be significantly diluted. Contamination of the fish in the lake is therefore extremely unlikely.

C. Human Exposure Pathways

1. Ground Water

Contamination of residential water supply wells is variable and depends on the depth of the well and the composition of the aquifer in the immediate vicinity of the well. At least 35 wells contained one VOC; several contained multiple VOCs. Persons using the contaminated ground water may have been exposed to these VOCs via ingestion of the water and via inhalation of chemicals volatilized from the water and to a much lesser extent, via dermal absorption.

At this time, most of the residences and industries in the advisory area to the east of the landfill are drawing water from the municipal water supply. There are residences to the east of the monitoring wells who are currently not under a well advisory. At this time MDH is working with MPCA to determine if possible contaminant plume movement warrants immediate sampling of these wells. It is possible that these residences are also being exposed to contaminants through the use of contaminated water in private wells.

2. Surface Water

Chemicals in the wetlands may be contacted by children playing in the swamp. Since it is unknown if the wetlands are contaminated, this pathway cannot be adequately assessed. However, this is not expected to be a significant route of human exposure. Persons interviewed on the site visit agreed that children rarely play in the wetlands, and that most of it is impassible.

Lake Bemidji will eventually receive contaminants from the landfill (See section V.B.2). As the plume moves to the lake, the concentration of contaminants is decreasing (RI, 1988). Given the size of this lake (6,920 acres; medium depth 34 feet, estimated volume 321,000 cubic meters), the contaminants are expected to be significantly diluted. Therefore, human exposure to appreciable concentrations of these chemicals is extremely unlikely.

3. Soil

Surface soil surrounding the landfill site is uncontaminated and there is no human exposure pathway. Human exposure to contaminated sediment in the wetlands is not possible to evaluate because sampling is incomplete. However, this is not expected to be a significant exposure route because children do not play in the wetlands, and most of it is impassible.

4. Air

The landfill was observed to be an unattractive site; not conducive to hiking or playing. There were no dirt bike trails on the site. No evidence of children playing on or around the landfill was observed during the site visit. Several persons interviewed during the site visit also indicated that children do not play on or around the landfill. Therefore, if gases are volatilizing from the pile, it is unlikely that there is any human exposure to them.

5. Biota

Humans are unlikely to be exposed to site contaminants via this pathway. Garden vegetables are unlikely to become contaminated (See Section V. B. 5). Consumption of contaminated wetland wildlife is not likely because residents interviewed on the site visit indicated that hunting does not occur in the wetlands, because it is illegal and largely impassible. Fish in Lake Bemidji are not expected to be contaminated (See Section V.C.2).

VI. PUBLIC HEALTH IMPLICATIONS

1. Contaminants of Concern

PCE is readily absorbed into the body via ingestion and inhalation and is deposited into adipose tissue. Dermal absorption at low concentration is probably insignificant (Stewart and Dodd, 1964), although cuts and lesions may allow greater absorption. Most of the absorbed dose is excreted unmetabolized through exhalation, and a small amount is metabolized in the liver to trichloroacetic acid and trichloroethanol which is excreted in the urine. Exposure to high concentrations (100 ppm) has been associated with neurological toxicity in humans (EPA, 1986). These effects are also seen in animals. Liver and kidney effects have also been noted after long periods of exposure (EPA, 1986). PCE has not been found to be

teratogenic. Mutagenicity studies of PCE have produced negative or inconclusive results, although a reactive metabolite of PCE, PCE epoxide, has been shown to be mutagenic. Human epidemiologic studies have been inconclusive because most workers exposed to PCE are also exposed to other solvents. Animal studies by NTP (1986) and NCI (1977) have shown positive carcinogenic responses. PCE is classified by CAG as a group B2 carcinogen (probable human carcinogen; EPA, 1986) by both the oral and inhalation routes of exposure. CAG has estimated that lifetime ingestion of water (2 liter/day) containing 6.7 ug PCE/liter would present an increased cancer risk of 1 excess cancer per population of 100,000. However, because the classification of PCE is controversial ODH has set Lifetime Health Advisory at 10 ug/l for non-carcinogenic endpoints (EPA, 1987), based on a reference dose of 0.0143 mg/kg/day (drinking water equivalent level of 500 ug/l). MDH uses 6.7 ug/l for its RAL for PCE.

TCE is also readily absorbed into the body via ingestion and inhalation. Like PCE, most of the dose is exhaled unchanged, but unlike PCE, most of the absorbed dose is metabolized to trichloroethanol, trichloroethylene-glucuronide, trichloroacetic acid, and other minor metabolites. Elimination is slow. TCE also distributes to fat. Primary targets for TCE are the central nervous system (CNS), liver, kidney and hematological system (ATSDR, 1988). Immune effects have been noted in animals at chronic doses of 18 mg/kg (Sanders et al., 1982), and hematological effects at 50 mg/kg (Nomiyama et al., 1986). TCE metabolites have been shown to be weakly mutagenic. Reports of human exposure to TCE are not useful in evaluating carcinogenic potential of this compound; all of the studies are controversial or have design flaws. However, TCE was found to induce hepatocellular carcinoma in mice (NCI, 1976), and liver neoplasms in mice (NTP, 1982). Because of the positive animal studies, CAG designates TCE as class B2 (probable human carcinogen, EPA, 1986). Further support for classifying TCE as a probable human carcinogen comes from studies that indicate that the metabolism is qualitatively similar in animals and humans. CAG has estimated that lifetime ingestion of water (2 liters/day) containing 28 ug TCE per liter of water would present an increased cancer risk of 1 excess cancer per population of 100,000 (EPA, 1987).

1,1-DCE is completely absorbed after a gavage dose and distributes to the liver and kidneys (Jones and Hathway, 1978). Metabolism to end products of alcohols and carboxylic acids involves the formation of toxic intermediates which may interact with tissue macromolecules (Liebler et al., 1984). Renal and biliary excretion is rapid (Jaeger et al., 1977). Humans exposed via inhalation to high concentrations of 1,1-DCE exhibited CNS depression and headaches (NIOSH, 1979). Since much human exposure is to a mixture of chlorinated ethylenes it is hard to attribute effects specifically to 1,1-DCE.

Animal studies show that the most sensitive toxic endpoint of 1,1-DCE is liver damage, including fatty infiltration, hypertrophy of liver cells, and necrosis (Chieco et al., 1982; Rampy et al., 1977; Quast et al., 1983). No reproductive or developmental effects have been shown to occur with this chemical. 1,1-DCE has been shown to be

mutagenic with activation (IARC, 1982; Jacobson-Kram, 1986). A few studies have shown an increase in tumors after inhalation exposure to 1,1-DCE, but no oral exposure studies have demonstrated a carcinogenic effect (NTP, 1982). EPA has concluded that most studies of this chemical do not support a significant, treatment related increase in tumor incidence (EPA, 1987). As a result, CAG classifies it in group C (possible human carcinogen) and has estimated that lifetime ingestion of water (2 liter/day) containing 2.3 ug 1,1-DCE/liter would present an increased cancer risk of 1 excess cancer per population of 100,000. Because of the controversial classification of 1,1-DCE, ODW has set a lifetime health advisory at 7 ug/l for noncarcinogenic endpoints, based on a reference dose of 0.0143 mg/kg/day (drinking water equivalent of 350 ug/l). The toxic endpoint for this recommendation is fatty deposition in the liver (Quast et al., 1983).

Vinyl chloride found in ground water is almost always found in occurrence with TCE, because it is a bacterial degradation product of TCE. It is absorbed rapidly following ingestion and inhalation exposure. It distributes primarily to liver and secondarily to kidney, muscle, lung and fat. Unmetabolized chemical will preferentially distribute to fat. Vinyl chloride metabolism is saturable. At low doses, it is metabolized through alcohol dehydrogenase to 2-chloroacetaldehyde which may bind to protein. At higher doses, vinyl chloride may be metabolized by mixed function oxidases to 2-chloroethylene oxide which may bind to DNA and RNA, and may rearrange to 2-chloroacetaldehyde. Exhalation of unmetabolized vinyl chloride is not an important elimination pathway at low doses; at higher doses where metabolism is saturated, it becomes more important (Watanabe et al., 1976 a and b). Metabolites are eliminated primarily in the urine.

As with the other chlorinated ethylenes, the systemic targets of vinyl chloride are CNS, liver and kidney. A large number of genotoxicity studies of humans occupationally exposed to vinyl chloride consistently show chromosomal aberrations. Many studies have noted an increased incidence of liver angiosarcoma in workers exposed to vinyl chloride via inhalation. Prolonged exposure appears to increase the risk. Other cancers have been reported in humans, but there is controversy as to whether these can be attributed to vinyl chloride exposure. These cancers include tumors of the brain and CNS, respiratory and digestive tract, the lymphocytic and hematopoietic system, and the skin. There are no data on humans exposed orally to vinyl chloride. Low doses (1.7 mg/kg/day) have been shown to induce liver angiosarcoma and hepatocellular carcinoma in rats (Feron et al., 1981). Associations with other cancers are also reported. CAG has determined vinyl chloride to be classified a known human carcinogen. CAG has estimated that lifetime ingestion of water (2 liters/day) containing 0.15 ug vinyl chloride per liter of water would present an increased cancer risk of 1 excess cancer per population of 100,000 (EPA, 1987).

Benzene is a neutral, low molecular weight, lipid-soluble chemical. Animal studies indicate that virtually all of an ingested dose will be absorbed (Sabourin et al., 1986), while data from humans show about 50% absorption from inhalation exposure (ATSDR, 1987). Benzene can be absorbed through the skin, but at a much lower rate (Blank and McAuliffe, 1985). A fraction (estimates from 12 to 50%) is exhaled unchanged. The absorbed portion is distributed mostly to bone marrow, fat and liver. Benzene metabolism occurs primarily in the liver and secondarily in the bone marrow, and it is the metabolites that are responsible for benzene-induced toxicity demonstrated to date. Benzene is metabolized by mixed-function oxidases to hydroxylated benzenes, primarily phenol and also hydroquinone, catechol or 1,2,4-trihydroxybenzene. These can be metabolized further to quinones or semiquinones (Snyder, 1987). Chemicals which increase mixed-function oxidase activity (e.g., ethanol) will increase benzene metabolism. Conversely, chemicals which decrease mixed-function oxidase activity (e.g., toluene, carbon monoxide, PCBs) will decrease benzene metabolism. Benzene metabolites covalently bind to cellular macromolecules, which may be the mechanism of toxicity. Urinary excretion of metabolites is rapid, and can be used as an indicator of benzene exposure.

Bone marrow is a target organ for benzene, and exposure results in changes in the circulating formed blood elements. There are numerous examples of benzene-induced hematological toxicity in humans exposed occupationally. One investigator estimates that chronic exposure to as little as 10 ppm may cause depressed lymphocyte levels and lymphocytopenia (Chang, 1972). In addition, there is evidence that there may be a positive association between pancytopenia or aplastic anemia and later development of leukemia (ATSDR, 1987b). Exposure to benzene can also cause immune system depression. Many aspects of the hematological system are altered by benzene exposure, including "antibody formation against leukocytes, platelets, and red cells" (Goldstein, 1977).

Studies consistently show structural and numerical chromosomal aberrations in human lymphocytes (Snyder, 1987). Many epidemiologic and case studies also show a link between benzene exposure and leukemia. Based on human epidemiologic studies in occupational settings by Rinsky (1981), Ott (1978), and Wong (1983), the EPA Carcinogen Assessment Group (CAG) designates benzene as Class A (known human carcinogen). EPA CAG has estimated that lifetime ingestion of water (2 liters/day) containing 7.0 ug benzene per liter of water would present an increased cancer risk of one excess cancer per population of one hundred thousand (EPA, 1985 and D. Bayliss, pers. comm).

B. Implications of Media Specific Exposure

1. Ground Water

When private wells were found to be contaminated, a health advisory was issued to persons within the area of contamination. Alternate water was provided to persons in the advisory area. However, it was reported that very few persons used the alternate source (Chairman Northern Township Board, pers. comm.). Also, there are four residences who have refused to connect to the new water supply. These four properties are in the Phase I area of the water supply project. One well was tested in 1985 and found to be uncontaminated. The three other wells were never tested. Because there is no information on the contamination of these wells, assessment of health impacts is not possible at this time. If these persons are using contaminated water, this represents a health concern. It should be noted that these persons have been informed by MPCA of the risk of using contaminated water and have chosen not to connect to the municipal system. Because the contamination has not been identified in the Phase II area to date, it is expected that a larger number of property owners in this area will refuse to connect to the municipal system. Connection in this area will be made in the spring/summer 1989. At this time, the number of properties which will refuse connections is unknown.

The contaminated ground water has significant public health implications. Because the contaminants are volatile organics, human exposure occurs not only via ingestion of the water in drinking and cooking, but also via inhalation of the volatilized chemical, especially in situations where the water is warmed, such as in showering and bathing, cooking, and cleaning dishes and laundry. There is much evidence that this route of exposure is quite significant (Andelman, 1986; Juchatz, 1987; EPA, 1984) and can contribute a dose half-again as much as that from ingestion of 2 liters of water per day (EPA, 1987). Dermal absorption is also possible to a small degree.

In some residential wells numerous contaminants were found, none of which exceeded health based standards for the individual chemical. However, since the synergistic or additive effects of exposure to mixtures of these chemicals are not known, the consumption of this water is also of concern.

2. Surface Water

The contaminant status of surface water and sediments in the wetlands is unknown. However, since human exposure is likely to be insignificant, exposure to potential contaminants is probably not of human health concern. Also, given the great dilution potential for any contaminated ground water which to reach Lake Bemidji, this pathway is also not likely to be of concern.

3. Soil

Since surface soil is uncontaminated and there is no human exposure pathway, no public health implications can be defined for this pathway at this site.

4. Air

Since this human exposure pathway is not complete, no public health implications can be defined for this pathway at this site.

5. Biota

Since this human exposure pathway is not complete, no public health implications can be defined for this site.

VII. CONCLUSIONS AND RECOMMENDATIONS

Based on the available information, this site is considered to be of potential public health concern because of the risk to human health caused by the possibility of exposure to hazardous substances via the continued use of contaminated ground water.

MDH should work with MPCA in the future to advise those persons who have refused to connect to the available uncontaminated municipal water supply to connect.

The distribution of water from the Bemidji municipal water system has ended exposure to the contaminants for persons in the advisory area (except possibly for those who have refused to use the system). However, there may be persons to the east of the advisory area whose wells have recently been contaminated by the eastward movement of the plume. This is of immediate concern and should continue to be addressed by MDH and MPCA. If contamination is found, a well use advisory should be issued.

A cover is needed on the landfill to reduce infiltration of the contaminants into the ground water and to control gases. The MPCA should continue with the alternative selected in the ROD.

When high ground water makes sampling of the wetlands possible, sampling of this area should be conducted.

In accordance with CERCLA as amended, the Kummer Sanitary Landfill, Northern Township, Beltrami County, MN has been evaluated for appropriate follow-up with respect to health effects studies. Although direct access to the site is possible, no populations can be defined as being exposed and there are no indications that human exposure to off-site contaminants is currently occurring. Therefore, this site is not being considered for follow-up health studies at this time. However, if data become available suggesting that human exposure to significant levels of hazardous substances is currently occurring or has occurred in the past, ATSDR will re-evaluate this site for any indicated follow-up.

VIII. PREPARERS OF REPORT

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Table 1. Maximum Concentrations of Organic Contaminants Found in Wells (residential and off-site monitoring Wells) at the Kummer Landfill Site. Units are micrograms per liter.

Compound	Monitoring Wells	Residential Wells
Vinyl Chloride	67	41
1,2-Dichloroethene	7.6	27
1,1,2,2-Tetrachloroethene	10	16
Benzene	5	2.3
1,1-Dichloroethane		3.8
Xylenes	12	
Ethyl Benzene	10	
Chloroethane	16	
1,1-Dichloroethene	7.6	35
Ethyl Ether		43
Tetrahydrofuran		2.3
1,2-Dichloroethane		3.8
1,1,1-Trichloroethane		6.1
1,1,2-Trichloroethene		6.8
Trichlorofluoromethane		5.6
Chloroform		2.4
1,2-Dichloropropane		1.2
Carbon Tetrachloride		0.2
Napthalene	11	
bis(2-ethylhexyl)Phthalate	43	

Blanks indicate the chemical was either not detected or was detected at unquantifiable concentrations.

RECEIVED

APR 29 1985

MINN. POLLUTION
CONTROL AGENCY

NORTHERN TOWNSHIP

P. O. Box 919/ 942
Bemidji, Minnesota 56601

April 10, 1985

Mr. Thomas Jackson (SMFG)
Region V., Grants Management Section
U.S. Environmental Protection Agency
230 South Dearborn Street
Chicago, IL 60604

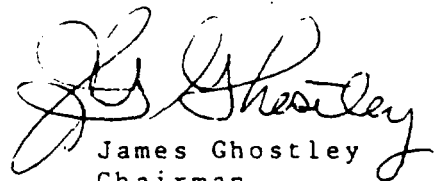
Dear Mr. Jackson:

This letter is in reference to your MPCA letter to us dated March 21, 1985. In that letter you seek our comments on the proposed Superfund project to be funded by CERCLA.

We are very anxious that this matter should be resolved and hopeful that the 90-percent funding may be obtained through CERCLA. We understand that the 10-percent is designated to be funded by Northern Township and we agree to do so, reserving to ourselves our full rights under applicable law to seek compensation, contribution or indemnification from responsible persons or entities.

We are most appreciative of your efforts and encourage the fastest possible resolution of the difficulties on behalf of our constituents.

Thank you very much.



James Ghostley
Chairman
Northern Township Board

MEMORANDUM OF
AGREEMENT
BETWEEN MINNESOTA POLLUTION CONTROL AGENCY
AND
NORTHERN TOWNSHIP

WHEREAS, the presence of hazardous substances including vinyl chloride has been detected in private wells in an area of Northern Township (Township), Beltrami County, Minnesota, and

WHEREAS, the Minnesota Department of Health and the Minnesota Pollution Control Agency (MPCA) have identified an advisory area in Northern Township in which they advise against use of well water for drinking and cooking purposes, and

WHEREAS, the United States Environmental Protection Agency (EPA) has funded a Phased Feasibility Study conducted by the MPCA that identified that an extension of the City of Bemidji water system and installation of a new municipal well is the preferred Remedial Action (RA) alternative, and

WHEREAS, the EPA Record of Decision approved an alternative water source for the area, and

WHEREAS, this Remedial Action is the installation of an operable public water distribution system in Northern Township, and

WHEREAS, the EPA is authorized pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended to provide financial assistance, through Cooperative Agreements with States to implement measures for investigation and remedy releases or threatened releases of hazardous substances, and

WHEREAS, Section 104(c) (3) of CERCLA requires a State to assure payment of 10% of the costs of a RA, and

WHEREAS, the MPCA is authorized pursuant to the Minnesota Environmental Response and Liability Act, (MERLA), Minn. Stat. ch. 115B (State Superfund Act) to expend funds from the Environmental Response, Compensation and Compliance Fund (Fund) for Response Actions, and

WHEREAS, the MPCA has authorized certain expenditures from the Fund to accomplish the work described in this Agreement, and

WHEREAS, the MPCA is authorized pursuant to Minn. Stat. § 116.03, subd. 3 (1988) to enter into cooperative agreements on behalf of the State for the purposes of administering CERCLA funds, and

WHEREAS, the EPA and the MPCA have executed a Cooperative Agreement for the purpose of Remedial Investigation through RA activities related to ground water contamination in several areas including the Northern Township areas, and

WHEREAS, to fulfill the requirements of CERCLA as amended, the Northern Township Board of Supervisors on behalf of Northern Township (Township) agrees to provide a portion of the monies toward the 10% nonfederal share to match the EPA 90% share of funding as described herein, and

WHEREAS, the MPCA commits to facilitate transfer of title of the new municipal well, well house, water mains, and appurtenances from EPA to Northern Township, and

WHEREAS, the Township agrees to accept the use and actual possession of the water mains and 35% of the new municipal well, hydrants, well house and pump, and all other related appurtenances, and

WHEREAS, the City of Bemidji has agreed with the Township to pay 65% of the new municipal well, well house and pump, and

WHEREAS, the Township agrees to accept responsibility for operation and maintenance of its share of all phases of the RA after each is operational, functional and upon receipt of title for each phase of the completed RA.

NOW THEREFORE, it is agreed by and between the MPCA on behalf of the State and Northern Township Board of Supervisors on behalf of Northern Township:

1.0 PURPOSE

- 1.1 This is an agreement between the MPCA on behalf of the State of Minnesota (State) and Northern Township Board of Supervisors (Township Board) on behalf of Northern Township (Township) to transfer the payment of the nonfederal ten percent (10%) match for federal funding less a \$44,906 State Superfund credit and less other credits granted the Township by the State and to adopt assurances between the Township and the State accepting the Remedial Action (RA).
- 1.2 The agreement delineates the responsibilities of the parties and provides assurance required by CERCLA, as amended.
- 1.3 Attached to this agreement and made an integral part of this agreement is the Statement of Work (SOW) to be performed under this agreement. This agreement may be amended if the parties agree to undertake additional activities beyond the scope of the SOW.
- 1.4 The agreement is effective upon execution by the Commissioner of Finance and the Township, and shall remain in effect until completion of the RA and any agreed amendments hereto.

2.0 PARTIES

- 2.1 The parties to this agreement are the State of Minnesota and Northern Township. The MPCA Commissioner has been delegated authority to enter into agreements by the MPCA Board. The Township Chairman and Supervisors are authorized to enter into this agreement. This agreement and all amendments shall be deemed adopted when approved by 3/5 vote of the Township Board.
- 2.2 The State has designated Larry E. Olson, Enforcement Unit, Ground Water and Solid Waste Division, Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155, (612)296-7325 as the Project Manager for this Agreement. This designation may change by official notice from the MPCA Commissioner to the Township.

- 2.3 The Township has designated Michael Kelly, Township Supervisor, as the Township Representative for this Agreement. This designation may change by official notice from the Township Board.
- 2.4 The Project Manager will notify the Township Representative of decisions made concerning this project. The decisions may enlarge the scope of work or increase cost of performance under this agreement and the parties may, accordingly, amend this agreement.

3.0 STATE RESPONSIBILITIES

- 3.1 The MPCA shall transmit in a timely manner to the Township Representative information on decisions made between the State and the EPA, time of meetings and inspections, and reports associated with the RA.
- 3.2 The MPCA will circulate a draft RA report to the Township prior to providing the Township with a final RA report.
- 3.3 The State shall furnish the necessary personnel, materials, services and facilities to perform the activities delineated in the SOW.
- 3.4 The Township has easement authority. The State may assist the Township in obtaining easements, when the Township requests assistance.
- 3.5 The MPCA Board in a November 1985 resolution agreed to loan up to \$114,270 to the project provided the funds are repaid to the Environmental Response Compensation and Liability fund. The resolution remains in effect.
- 3.6 The State agrees to pay the Township's legal expenses up to \$3000.00 for obtaining permanent easements from property owners for permanent access to the water mains. The State requires documentation of actual hours worked, standard hourly rate for the type of work and costs.

4.0 TOWNSHIP RESPONSIBILITIES

- 4.1 The Township shall furnish the necessary personnel, materials, services and facilities to perform its responsibilities under this agreement.
- 4.2 The Township may provide comments and/or assistance during the design and installation of the RA.

- 4.3 The Township shall review and comment on the final RA Report and respond to the State within 30 calendar days of receipt of the report. The Township Board's approval of the report will constitute its acceptance of the remedy. The Township Board shall not unreasonably withhold approval.
- 4.4 Northern Township shall pay for the nonfederal share in accordance with Section 5.0.
- 4.5 Northern Township shall obtain all easements necessary to complete the activities in the SOW.
- 4.6 The Township agrees to conduct operation and maintenance of the water distribution system upon acceptance of the remedy in accordance with Section 15.
- 4.7 The Township shall adopt an ordinance that prohibits the connection of private or domestic wells within Northern Township to the public water distribution system. The ordinance shall be effective within 90 days from the date of this Agreement.
- 4.8 The Township shall adopt routine inspection procedures to ensure the ordinance is adequately enforced.
- 4.9 The Township shall establish an enforcement procedure to ensure homeowner compliance with the ordinance.
- 4.10 The Township shall, within 30 days, adopt and implement an educational program to inform Northern Township property owners of the problems that may result if private wells are connected to the public water distribution system.

5.0 PAYMENT

- 5.1 The Township is assuring payment of \$142,983 towards the cost of carrying out the work set forth in the SOW attached to this Agreement. The \$142,983 payment will address the 10% match requirement for the nonfederal share of the RA work. In the event that 10% of the cost of the RA exceeds \$142,983, the Township assures payment of the amount in excess of \$142,983 to equal the full 10% nonfederal share less the \$44,906 in State Superfund credit. In the event the 10% cost of the RA is less than \$142,983 the MPCA shall notify the Township of the revised cost amount, and the MPCA shall promptly refund the excess to the Township.
- 5.2 Payment of the 10% match shall be made in 4 installments in the following manner:

- a. 20% of the amount due by November 25, 1989;
 - b. 30% of the balance within 60 calendar days of the Township's acceptance of the Agreement;
 - c. 30% of the balance within 60 calendar days following the MPCA and Township's inspection of the installed RA; and
 - d. the balance remaining considering applicable administrative expenses incurred by the Township within one year following inspection of the RA required by Section 13.0 of this agreement.
- 5.3 The EPA may conduct a final audit of the project. If, by the results of the audit, EPA disallows for reimbursement to the MPCA, any costs, the Township agrees to reimburse the MPCA for those costs attributed to the Township's local share.
- 5.4 All payments by the Township shall be made payable to MPCA, identified as made pursuant to this Agreement and sent to:

John Retzer
Minnesota Pollution Control Agency
Section of Accounts
520 Lafayette Road North
St. Paul, Minnesota 55155

6.0 TITLE AND INTEREST

- 6.1 Township agrees to accept title to the water main, hydrants, new well, well house and pump.
- 6.2 Title to each component part of the water system will transfer upon completion and acceptance by the EPA and the Township that the component part of the remedy is functional and operational.

7.0 OPERATION AND MAINTENANCE

- 7.1 The Township agrees to assure all operation and maintenance of the remedial action from the time each component part is functional and operational as provided by Federal Regulation.

8.0 ACCESS TO THE SITE

- 8.1 The Township shall assure access to the water distribution system to the State, EPA, or contractors for the purpose of completing the actions required by this agreement and the SOW attached hereto.
- 8.2 Neither party shall defend, indemnify, nor hold harmless the other from any claims, damages, losses, and expenses including those incurred as a result of willful, reckless or negligent acts or omissions.

9.0 AVAILABILITY OF INFORMATION

- 9.1 The Township has previously provided to the EPA and the State necessary information concerning the Northern Township/City of Bemidji well site. At the request of the State, the Township shall provide the EPA or MPCA with any further information concerning the well site and water main installation which is in the possession of the Township. If such information is submitted by the Township pursuant to a claim of confidentiality, said information shall be treated in accordance with the requirements of 40 CFR Part 2. Absent such a claim, the State or EPA may make such information available to the public without further notice.
- 9.2 At the request of the Township, and in accordance with applicable Federal law, the State agrees to provide the Township with information and reports developed or prepared pursuant to EPA RA activities. The Township agrees not to release such information or reports determined to be confidential pursuant to 40 CFR Part 2 to the public unless the Township first obtains approval from both the U.S. EPA Region V Office of Regional Counsel, and the U.S. EPA Regional Project Manager.

10.0 LIABILITY TO THIRD PARTIES

- 10.1 Nothing in this contract is intended to be construed as a waiver of the Minnesota Torts Claim Act, Minn. Stat. § 3.736 et seq. (1988) or any other law, legislative or judicial, limiting government liability.

11.0 COST RECOVERY

- 11.1 The Township agrees to cooperate and coordinate with the efforts by the EPA and the State to recover the State and EPA costs for the RA taken at the Site described herein, including the negotiation of settlement and the filing and management of any judicial actions against potentially responsible parties. This shall include availability of evidence and witnesses in the preparation and presentation of any EPA cost recovery action, except any documents or information which may be confidential under the provisions of any applicable State or Federal laws or regulations.

12.0 PRE-FINAL INSPECTIONS

- 12.1 The Township may participate in the pre-final construction conference, to be held upon preliminary project completion, to discuss RA completion procedure and requirements. The State will provide the Township five working days advance notice of, and an agenda for, this meeting. The Township also shall participate in the pre-final inspection of the remedy to determine the projects

completeness. The Project Manager will provide the pre-final inspection report to the Township Representative for review. This report will outline outstanding construction items, actions required to resolve them, and anticipated completion dates for these actions. The Township Representative shall return any comments to the Project Manager within five working days of receipt of the pre-final inspection report.

13.0 FINAL INSPECTION

- 13.1 Following completion of the RA, the Township, the State, EPA, and/or the remedial contractor(s) will jointly inspect the project to confirm that all outstanding construction items are resolved. Upon the EPA's approval of the RA report the RA will be ready for service.

14.0 REMEDIAL ACTION REPORTS

- 14.1 The State may prepare a RA report for each component part of the RA at the completion of each part of the RA performed under this agreement. Each report shall be submitted to the Township for review within 30 days after final inspection of the part. Each report will describe outstanding construction items from the pre-final inspection, summarize the work defined in the SOW for the component part reported and certify that this work was performed, explain any modifications to work in the SOW and why they were necessary for the project, and certify that the component part of the remedy is functional and operational. Any RA reports that have been prepared but not yet submitted to the Township shall be submitted by the State within twenty (20) days after the effective date of this agreement.
- 14.2 Upon completion of the final component part of the RA, the State will prepare a RA report for the entire project. The final report shall be submitted to the Township for review within 30 days after the joint EPA/State/Township Final Inspection. The report will describe outstanding construction items from the pre-final inspection and indicate that disputed items were resolved; summarize work defined in the SOW for this agreement and certify that this work was performed; explain any modifications to work in the SOW and why these were necessary for the project; and certify that the remedy is functional and operational.

15.0 ACCEPTANCE OF THE REMEDY

- 15.1 The final RA report will be provided to the Township by the State. The Township's acceptance of the complete remedy will be provided to the State by letter no later than 45 days after receiving the final RA report. The Township's review and approval of the RA report will signify the Township acceptance of the remedy. The Township shall not unreasonably withhold its approval.

16.0 TRANSFER OF GUARANTEES AND WARRANTIES

- 16.1 Upon the Township's acceptance of the remedy all guarantees and warranties associated with the remedy will be transferred to the Township's possession. However, the parties recognize that the State can only transfer those guarantees and warranties as provided in the State's agreements with response contractors.

17.0 AMENDMENTS

- 17.1 Any modifications to this agreement must be agreed to, in writing, by both parties hereto, except as provided elsewhere in this agreement.

18.0 RESOLUTION OF DISPUTES

- 18.1 Any disagreements arising under this agreement shall be resolved to the extent possible by the Project Manager and the Township Representative.
- 18.2 If any such disagreement cannot be resolved by the Project Manager and Township Representative, it shall be referred to the MPCA Commissioner for a final resolution, however, the Commissioner shall confer with the appropriate EPA representative prior to the final resolution. For the purposes of resolving disputes under this agreement, the Commissioner is the disputes decision official. Each party to this agreement retains the right to seek judicial interpretation of the provisions contained in the agreement after the Commissioner has made his final decision.

19.0 TERMINATION OF THE AGREEMENT

This agreement shall remain in effect until all activities described in the SOW have been completed and the RA is accepted by the State, the Township and the EPA unless the parties jointly agree in writing to terminate the Agreement. Termination of this Agreement shall not affect the obligations in Section 5, 9 and 11 which are intended to extend beyond termination.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in copies, each of which shall be deemed an original.

NORTHERN TOWNSHIP

Don R. Delaney
Chairman

Nov. 6, 1989
Date

Emily J. Wright
Supervisor

November 6, 1989
Date

Michael Holey
Supervisor

November 6, 1989
Date

Earl Hargensen
Supervisor

November 6, 1989
Date

Supervisor

Date

Kurtis Tree Miller
ATTEST: TOWN CLERK

11-6-89
Date

MINNESOTA POLLUTION CONTROL AGENCY

Gerald S. Willet
Commissioner

November 28, 1989
Date

[Signature]
Attorney General
As to form and execution

11-28-89
Date

DEC 22 1989

Commissioner of Administration
By: Gerald T. Joyce

Date

*Original Signed By
T. MARSH*
Commissioner of Finance

Date

DEC 26 1989

STATEMENT OF WORK (SOW)
NORTHERN TOWNSHIP WATER SYSTEM

The following items are the tasks required for this project:

Task 1 - Remedial Design

The Minnesota Pollution Control Agency (MPCA) arranged for the preparation of all engineering design work, including on-site field inspections, surveys, and preparation of plans and specifications. Plans and specifications were reviewed for biddability, constructability, and compliance with applicable state and federal requirements. All activities under this task are funded 100 percent by federal Superfund funding.

Task 2 - Procurement Activities

The MPCA will arrange for the preparation of bid packages up to and including the award of contracts to the lowest competitive bidder. Separate procurement activities will be conducted for each construction phase, such as water main construction (two phases), service line installation (13 groups), well drilling, well house construction, and private well abandonment. Procurement activities include:

- Advertise for bids and distribute specifications and plans;
- Conduct pre-bid meetings when appropriate;
- Respond to bidder inquiries and distribute addenda;
- Select and notify successful bidder; and
- Award contract.

All activities under this task are funded 100 percent by federal Superfund funding.

Task 3 - Resident Field Staff

The MPCA will arrange for on-site resident observation (oversight) services during all activities during each of the construction phases. Oversight services include:

- Provide a resident inspector to monitor that construction proceeds in accordance with the plans and specifications;
- Conduct construction-related testing and sampling;
- Monitor site safety provisions;
- Respond to contractor and property owner inquiries; and
- Prepare as-built plans upon completion of construction.

Task 4 - Construction Activities

The MPCA will arrange for construction of all phases of this project by the contractors selected under Task 2 above. Construction will proceed in accordance with the plans and specifications prepared under Task 1 above. Construction will consist of the following major activities:

- Construct one (1) 24-inch, driven casing well approximately 160 feet deep;
- Install one (1) vertical turbine pump capable of delivering 1500 gallons per minute (gpm);
- Construct one (1) 13 x 22 foot masonry well house complete with piping, ventilation, and electrical equipment;
- Provide well site work including access road, connecting water main, and site restoration;
- Install water mains, valves, hydrants, and other fittings in public rights-of-way and on private easements;
- Provide individual service line connections, internal plumbing connections, and site restoration on private properties; and
- Provide abandonment and sealing of private wells as needed.

Task 5 - Project Management

The MPCA will coordinate all project management activities, including applications for grant funding, completion of reporting requirements, and financial tracking. Project management activities include:

- Coordinate activities among MPCA management and staff, U.S. Environmental Protection Agency (EPA), consultants, and contractors and subcontractors;
- Prepare funding requests for federal Superfund grants and state Superfund loans;
- Prepare and submit technical, financial, and management reports to appropriate agencies;
- Monitor engineering, construction, contractual, and support costs for compliance with budgets and contracts;
- Review contractor and subcontractor requests for payment for compliance with contracts, plans, specifications, and state and federal procurement regulations;
- Process contractor and subcontractor invoices for payment in accordance with state regulations;
- Maintain an orderly set of files containing plans, specifications, contracts, invoices, and correspondence for current use and permanent storage;
- Provide technical support to field personnel during construction;
- Respond to inquiries from EPA, Minnesota Department of Health, Beltrami County, City of Bemidji, Northern Township, other elected and appointed officials, press media, contractors and subcontractors, property owners, and other interested parties;
- Conduct meetings for prebid, preconstruction, prefinal inspection, and final inspection activities as necessary or as required;
- Prepare a prefinal inspection report and a remedial action (final) inspection report; submit same to Northern Township and EPA for acceptance;
- Receive and file as-built drawings from contractors and subcontractors;
- Procure required permits from Beltrami County, FAA, Minnesota Department of Health, and others;
- Receive operating manuals for well pump and other equipment from contractors and subcontractors; submit same to Northern Township or City of Bemidji; and
- Provide community relations activities, including periodic informational letters to Northern Township and affected property owners, press releases, and responses to inquiries from the press media and the general public.

Task 6 - Easement Descriptions

Both parties acknowledge the need for recorded easements where water mains are constructed on private property for the purpose of providing routine maintenance and necessary repairs to the water system. The MPCA will provide to Northern Township legal descriptions for easements on private property to be executed and recorded. Under the terms of a separate contract, Northern Township will perform the following major activities under this task:

- Receive legal descriptions of the locations for easements from the MPCA;
- Secure agreements from property owners for establishment of the easements;
- Record the easements with the Beltrami County Recorder's Office, or other appropriate agency; and
- Provide copies of the recorded easements to the MPCA.

CITY WATER SERVICE AGREEMENT

BETWEEN

THE CITY OF BEMIDJI, MINNESOTA,

AND

THE TOWNSHIP OF NORTHERN, BELTRAMI COUNTY, MINNESOTA.

THIS AGREEMENT made and entered into by and between the City of Bemidji, a Municipality duly incorporated under the laws of the State of Minnesota, located in Beltrami County, Minnesota, (hereinafter the "CITY") and the Township of Northern, an adjacent local unit of government located in Beltrami County, Minnesota, (hereinafter "NORTHERN").

W I T N E S S E T H:

WHEREAS, Northern Township is in need of a water supply for, among other things, private consumption by its residents, other persons, and fire protection, and in conjunction with the Minnesota Pollution Control Agency, Northern has constructed a water service system, compatible with that of the City, to serve its residents; and

WHEREAS, Northern desires to enter into an agreement with the City whereby the City would extend and connect its water system to Northern's to provide the needed water service, and the City is willing to provide said water service.

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth, the parties agree as follows:

I. TERM OF CONTRACT

This agreement shall be for a term of fifteen (15) years from the date of execution hereof, unless terminated earlier as hereinafter provided. This contract may be cancelled by either party for cause constituting breach of this contract or by the City if laws, rules or regulations are enacted by the State of Minnesota or the United States of America, or an agency thereof, which substantially and adversely affect rights, duties, or obligations of either party under this contract, or it may be terminated at the end of tenth (10) year of the term by written notice of such intent to terminate given by either of the parties to the other at any time during the eighth (8th) year of said term. Written notice shall be considered effective if mailed certified mail to the following addresses:

City Manager
c/o City Hall
401 Minnesota Avenue
Bemidji, Minnesota 56601

Township Chairperson
Northern Twp/Beltrami County
Beltrami County Courthouse
Bemidji, Minnesota 56601

II. WATER SERVICE

- A. The City agrees to furnish the water requirements of Northern and its residents for domestic, commercial, and fire protection purposes under normal static pressure in its mains at the points of connection with Northern. It is understood and agreed that the City assumes no responsibility for failure to supply water resulting from acts or conditions beyond its control.
- B. The quality of water supplied to Northern shall be the same treated water supplied by the City to its other customers.
- C. No supplemental supply of water shall be connected to the Northern water system being served by the City without the approval of the City.
- D. Northern agrees that the use and distribution of water in Northern, derived from the supply furnished from the mains of the City, shall at all times be governed by the rules, regulations and conditions which the City has heretofore adopted, or which it may hereafter adopt in said City from time to time for the preservation, regulation, and protection of its water supply. Northern further agrees to adopt the rules, regulations, and requirements of the City now in force or that may hereafter be adopted in connection with the use of water by it in Northern, and to enact such rules, regulations, and requirements into ordinances or otherwise make them legally effective and binding, within 90 days after the execution of this contract, and to enact any amendments thereto adopted by the City, within 90 days after being notified of such adoption.
- E. It is further agreed that the City, through its officers, agents, and employees, shall have the same authority and jurisdiction in the enforcement of such rules and regulations in Northern that they have in the City, and that the City will have the full authority to punish any violators thereof, and to prosecute any violation of such rules, regulations, and ordinances upon a complaint being made thereof to the City or to any of its officers, agents, or employees.

III. WATER SYSTEMS FACILITIES

- A. Northern agrees to construct or have installed in accordance with specifications and standards acceptable to the City, adequate and suitable water mains and appurtenances adequate for the distribution of water within the water service area of Northern outlined on the service map marked as Exhibit A attached hereto and incorporated herein. It is understood that Northern, in

conjunction with the Minnesota Pollution Control Agency, has constructed a water service system compatible with that of the City and in accordance with specifications and standards acceptable to the City.

Northern further agrees to construct or have installed in accordance with specifications and standards acceptable to the City, a well with appurtenant well pump, motor, electrical controls, chemical feed equipment, valves, and meter for the provision and distribution of water as contemplated under this agreement. The City shall provide sixty-five percent (65%) of the cost of said well and appurtenances and shall be deemed a sixty-five percent (65%) owner of the same. Said well and appurtenances to be constructed on City property near the existing City well No. 2, with said well to be designated as City well No. 3.

Northern, in conjunction with the Minnesota Pollution Control Agency, shall provide thirty-five percent (35%) of the cost of the above said well and appurtenances, and Northern shall be deemed a thirty-five percent (35%) owner of said well.

- B. Northern further agrees that future mains, appurtenances, services and connections shall be of the same kind of materials and constructed in the manner and under the same standards, rules, and regulations as are now in effect or as may hereinafter be prescribed by the City for similar installations or instrumentalities in the City or under standards acceptable to the City.
- C. Northern shall, by the enactment of suitable rules, regulations, or ordinances, require that all piping, fixtures, accessories, interior or on the premises or in any manner connected to the public water system supplied by the City, shall be of the same materials and installed in the same manner and meet the same standards as are required for the same or similar work in the City.
- D. It is agreed that all future service connections from the main(s) to the property line shall be installed under rules identical with those in effect in the City or as may hereafter be modified by the City. New applications for water service connections shall be made first to Northern and thereafter to the City, which entity shall exercise final approval. The application shall include a certified street address as established by Northern.
- E. It is agreed that Northern shall make no extensions to its distribution system beyond the geographical limits of Northern without the written approval of the City.

- F. Northern agrees to permit the City to make connections to and have joint use of so much of the water system owned by Northern required for extensions required beyond the geographical limits of Northern if deemed feasible and desirable by the City and not detrimental to the supply within Northern; the City will pay Northern for any such use, the amount of such payment to be negotiated by the parties hereto.
- G. The City through its officers, agents and employees shall have the right at all times to examine, inspect and test any materials or workmanship used or to be used in connection with the water work system of Northern and supplied with water by the City or any extensions thereof or connections thereto, for the purpose of determining whether or not they comply with the foregoing provisions, and shall have the right to examine and inspect the materials, workmanship and methods of installation of house plumbing connecting with said water works system for the same purpose.
- H. Except as hereinafter provided, the City agrees to maintain and make all necessary repairs to the water works system of Northern which meet all standards, rules and regulations of the City, and as supplied with water by the City, to keep the same in proper repair and condition to prevent any waste of water; and Northern further agrees that the City may make emergency repairs to the water works system of Northern, and the cost of such maintenance shall be the sole expense of the City. The City agrees to operate, maintain and make all necessary repairs to pump station facilities, elevated tanks and reservoirs and the cost of such operation, maintenance and repairs shall be the sole expense of the City. The restoration of semi-permanent or permanent type street surfaces, boulevards, and easement surfaces of Northern damaged or destroyed in connection with maintenance, repair, construction or reconstruction work to be done by the City pursuant to the provisions of this agreement shall be done by Northern, reserving to itself the right to reimbursement of these costs from the resident users. Changes to the water supply system in Northern in connection with the maintenance or repairs of public streets, alleys, utilities, easements, or rights-of-way due to change of grade on such streets, alleys, utilities, easements, rights-of-way or any other change resulting from action of Northern as such changes affect mains, services and appurtenances within Northern, shall be in accordance with specifications and standards acceptable to City and any or all expenses or costs resulting from said changes shall be borne by Northern.

It is further agreed by and between the parties of this agreement that where Northern constructs or contracts for

the connection of new mains, services and appurtenances to be connected to the system and supplied with water by the City pursuant to the terms, conditions, and provisions of this agreement, the City shall not be responsible for the maintenance and repairs to such newly constructed additions to the water system until the City has notified Northern in writing of the acceptance of such installation.

- I. Northern does hereby grant the City the right in the performance of this agreement to the use of the streets, alleys, utility easements, or public ways of Northern for purposes of the City, including excavations for performing necessary work incidental to the performance of this contract and Northern does hereby agree with its departmental agencies to cooperate to the fullest extent in the protection of any mains, appurtenances, and excavations or barricades that may be necessary for the work performed by the City.
- J. An annual review of the City's standards, rules and regulations as they relate to Northern shall be held with representatives present from both Northern and the City. The meeting will be held at a time and place agreeable to both parties and after at least 10 days notice by Northern to its residents, said notice to be given by Northern at the usual township posting locations.

IV. METERS, METER READINGS, AND BILLING

- A. The City shall furnish, maintain and retain title to all customer meters, except those supplied by the EPA, and with regard to those, the City shall maintain them.
- B. The City shall assume full responsibility and expense for reading of meters, billing and collection of accounts. Residents of Northern shall be billed in the same manner as regular customers within the City. Likewise, payment on account by individual Northern residents shall be in the same manner as now in effect or as may hereinafter be prescribed by the City. Any surcharges hereinafter assessed by Northern shall be collected by the City and remitted to Northern on a monthly basis in a manner agreed to by the parties.

V. WATER RATES

Each user shall be charged rates identical to those set by the City, reserving to Northern the right to assess surcharges as they deem necessary and appropriate.

VI. FIRE HYDRANT USE, INSPECTION AND MAINTENANCE

- A. City hereby agrees to perform at no cost to Northern Township the necessary inspection of all fire hydrants, except private hydrants, connected to the Northern system and to perform routine maintenance of the hydrants including painting, replacement of missing or damaged nosel caps and chains, lubrication of nosel threads and hydrant operating mechanisms and the installation and repair of hydrant marking devices. In all events, flushing of hydrants shall be accomplished using reasonable care to avoid damage to surrounding properties.

Major hydrant maintenance needs including broken or damaged hydrant barrels and leaking or frozen hydrants shall be reported by Northern in writing to the City and the cost of such major hydrant maintenance work shall be the sole expense of Northern Township.

- B. Northern hereby agrees to keep strict and correct account of all water used for street sprinkling, street flushing, sewer maintenance or related use, and to pay semi-annually therefore to the City at the lowest step in effect for Northern.

VII. INSURANCE/INDEMNITY

City shall extend its existing insurance coverage(s) to include the duties, risks and activities undertaken by it hereunder. Furthermore, said insurance policies and certificates thereof shall name Northern as an additional insured and shall designate the Northern Water Works System as additional locations covered by the policy(s). In return, Northern shall reimburse City for any and all additional premium costs incurred as a result of extending said insurance coverage(s), as well as all other fees, costs, and expenses incurred by City as a result of any action(s) or claim(s) of whatever nature arising hereunder but not covered by the City's insurance coverage(s) or policy(s).

Northern shall reimburse City said additional premium costs within 30 days after receipt of notice of premium payment from City. Said notice shall be deemed received by Northern by the end of the third day after deposit of said notice, by the City, in regular First Class mail. Said notice shall be mailed to Northern at the address stated in paragraph I herein.

VIII. GUARANTEE-OF SUPPLY

The City agrees to furnish all water requirements of Northern under the terms of this contract, conditions and provisions as

herein provided subject to the qualifications herein before setforth.

It is agreed and between the parties hereto that the terms, provisions outlined in this agreement shall be applicable only as between the parties hereto and shall not afford the consumers within Northern any rights or interests hereunder.

IX. CONVERSION TO WHOLESALE

The City agrees to allow Northern the option of converting from a retail basis as outlined herein to a wholesale basis in whole or in part for obtaining water from the City; such conversion may be accomplished by giving the City written notice of at least twenty-four (24) months in advance of the date upon which Northern desires to make such conversion. A supplemental agreement covering the terms of such wholesale basis of sales to be executed by both parties for partial or complete change over from retail to wholesale is allowed.

X. USE OF SUPPLEMENTAL SUPPLY

This agreement shall not preclude Northern from establishing a portion of its' water system to be supplied by well water in areas where water supply from the City is impractical or unworkable, or in such cases where a central water supply system may be constructed and installed for a housing development prior to the time that water main supplying the area with water purchases from the City can be extended. However, in no case shall there be direct connections with the City's supply system with other supplies, and when the City's supply system is practical and workable, the other supplies should be discontinued.

XI. MISCELLANEOUS

A. Modifications

Any material alteration, modification, or variation of this agreement shall be reduced to writing as an amendment and signed by the parties. Any alterations, modifications, or variations deemed not to be material by agreement of the City and Northern shall not require written approval.

B. Merger

It is understood and agreed that the entire agreement of the parties is contained herein and that this contract supersedes all oral agreements and negotiations between the parties relating to this subject matter. All items referred in this contract are incorporated or attached and deemed to be part of the contract.

C. Severability

The provisions of this agreement shall be severable, and the invalidity of any paragraph, sub-paragraph or sub-division thereof, shall not make void any other paragraph, sub-paragraph, sub-division, or any other part.

D. Disclaimer/Non-Liability

The parties agree that the City by undertaking and performing the duties, obligations, risks, and activities agreed to hereunder, does not assume and is not responsible or liable for any claims or actions arising out of or as a result of separate obligations or agreement(s) entered into between Northern and the Minnesota Pollution Control Agency, and/or other third parties, respecting the plans for, construction of, and payment for Northern's water service system.

XII. EFFECTIVE DATE OF THE AGREEMENT

This agreement shall not be binding until the same has been accepted by resolution of the City Council of the City of Bemidji and the Town Board of Northern Township.

WITNESS the hands and seals of the parties hereto the day and year first above written.

CITY OF BEMIDJI

Douglas E. Peterson
Michael D. McCurdy

NORTHERN TOWNSHIP

Thomas R. Helmer
Henry R. Burkhardt

Approved as to form and content:

By Alan R. Felix
Alan R. Felix, City Attorney
401 Minnesota Avenue
Bemidji, MN 56601

By Carl Baer
Carl Baer, Attorney for Northern
KIEF, FULLER, BAER, WALLNER & RODGERS, LTD.
P.O. Box 880
Bemidji, MN 56601

NORTHERN TOWNSHIP WATER SUPPLY
SYSTEM AND UTILITIES ORDINANCE - RULES AND REGULATIONS
RATES, CHARGES AND COLLECTIONS

SECTION 1
DEFINITIONS

As used in this Ordinance, the following words and terms shall have the meanings stated:

1. "Township Utility" means any township-owned utilities system including, but not by way of limitation, water service.
2. "Consumer" and "Customer" mean any user of a township utility.
3. "Service" means providing a particular utility to a customer or consumer.

SECTION 2
RATES AND CHARGES FOR TOWNSHIP UTILITIES

The Town Board may set such rates, fees and deposits as it deems appropriate, including, but not limited to, rates for service; permit fees; deposit; connection and meter testing fees; disconnection fees; reconnection fees; and penalties for non-payment. No such resolution shall be adopted before a public hearing has been held thereon. Notice of such public resolution, containing the effective date thereof, shall be kept on file and open to inspection in the office of the Township Clerk and shall be uniformly enforced. For the purpose of fixing such rates and charges, the Township Board shall categorize and classify under various types of service, provided, that such categorization and classification shall be included in the resolution authorized by this Section.

SECTION 3
CONTRACTUAL CONTENT

Provisions of this Ordinance relating to township utilities shall constitute portions of the contract between the township and all consumers of township utility services and every such consumer shall be deemed to consent to the same.

SECTION 4
RULES AND REGULATIONS RELATING TO MUNICIPAL UTILITIES

Subd. 1. Billing Payment and Delinquency. All township utilities shall be billed monthly and a utility statement or statements shall be mailed to each consumer. All utilities charges shall be delinquent if they are unpaid by the 25th day of the month billed and a 10% penalty shall be imposed. Utility charges unpaid sixty (60) days from the date of billing will permit shut off. Service is suspended due to delinquency and shall not be restored at that location until a reconnection charge has been paid for each utility reconnected in addition to the amounts owed for service and penalties.

Subd. 2. Application, Connection and Sale of Service. Application for township utility services shall be made upon forms supplied by the township and strictly in accordance therewith. No connection shall be made until consent has been received from the Township to make the same. All township utilities shall be sold and delivered to consumers under the then applicable rate applied to the amount of such utilities taken as metered or ascertained in connection with such rates.

Subd. 3. Discontinuance of Service. All township utilities may be shut off or disconnected whenever it is found that:

- A. The owner or occupant of the premises served has violated any requirement of the Township Ordinance relative thereto, or
- B. Any charge for a township utility service or any other financial obligation imposed on the present owner or occupant of the premises served, is unpaid after due notice thereof, or,
- C. There is fraud or misrepresentation by the owner or occupant in connection with any application for service or delivery or charges therefor.

Subd. 4. Ownership of Township Utilities. Ownership of all township utilities, plants, lines, mains, extensions, and appurtenances thereto, shall be and remain in the township and no person shall own any part or portion thereof. Provided, however, that private facilities and appurtenances constructed on private property are not intended to be included in township ownership.

Subd. 5. Right of Entry. The Township has the right to enter in and upon private property, including buildings and dwelling houses, in or upon which is installed a township utility, or connection therewith, at all times reasonable under the circumstances, for the purpose of reading utility meters, for the purpose of inspection and repair of meters or a utility system, or any part thereof, and for the purpose of connecting and disconnecting service.

Subd. 6. Meter Test. Whenever a consumer shall request the Township to test any utility meter in their use, such a request shall be accompanied by a cash deposit for each meter to be tested. If any such meter is found to be inaccurate the same shall be replaced with an accurate meter and the deposit thereon refunded. If the meter shall be found to be accurate in its recordings or calculations it shall be reinstated and the deposit shall be retained by the Township to defray the cost of such test.

Subd. 7. Unlawful Acts.

- A. It is unlawful for any person to willfully or carelessly break, injure, mar, deface, disturb, or in any way interfere with any buildings, attachments, machinery, apparatus, equipment, fixture, or appurtenance of any township utility or township utility system, or commit any act tending to obstruct or impair the use of any township utility.

- B. It is unlawful for any person to make any connection with, opening into, use, or alter in any way any township utility system without first having applied for and received written permission to do so from the Township.
- C. It is unlawful for any person to turn on or connect any utility when the same has been turned off or disconnected by the Township for non-payment of a bill, or for any other reason, without first having obtained a permit to do so from the Township.
- D. It is unlawful for any person to "jumper" or by any means or device fully or partially circumvent a township utility meter, or to knowingly use or consume unmetered utilities or use the services of any utility system, the use of which the proper billing authorities have no knowledge.
- e. It is unlawful for any person to construct or maintain any private well of any kind or form intended for use or used for human consumption of water within that area of the township designated by the State of Minnesota as having polluted ground water and/or served by the Township water supply system.

Subd. 8. Township Utility Services, Charges and Liens.

- A. Payment for services and charges provided for herein shall be the primary responsibility of the owner of the premises served and shall be billed to him or her unless otherwise authorized in writing by the tenant and owner and consented to by the Township. The Township may collect the same in a civil action or, in the alternative and at the option of the Township, as otherwise provided in this subdivision.
- B. Each such charge is hereby made a lien upon the premises served. All such charges which are on the 30th of September of each year more than forty-five (45) days past due, shall be certified by the Township Clerk to the County Auditor between the 1st and 10th of October of each year, and the Township Clerk in so certifying such charges to the County Auditor shall specify the amount thereof, the description of the premises served, and the name of the owner thereof. The amount so certified shall be extended to Auditor on the tax rolls against such premises in the same manner as other taxes, collected by the County Treasurer, and paid to the Township along with other taxes.

SECTION 5
RULES AND REGULATIONS RELATING TO WATER SERVICE

Subd. 1. Deficiency of Water and Shutting Off Water. The Township is not liable for any deficiency or failure in the supply of water to customers whether occasioned by shutting the water off for the purpose of making repairs or connections or by any other cause whatever. In case of fire, or alarm of fire, water may be shut off to insure a supply for fire fighting. In making repairs or construction of new works, water may be shut off at any time and kept off so long as may be necessary.

Subd. 2. Repair of Leaks. It is the responsibility of the consumer or owner of abutting premises to maintain the service pipe from the main. In case of failure upon the part of any consumer or owner to repair any leak occurring in his service pipe within twenty-four (24) hours after oral or written notice has been given the owner or occupant of the premises, the water may be shut off and will not be turned on until a reconnection charge has been paid and the water service has been repaired. When the waste of water is great or when damage is likely to result from the leak, the water will be turned off if the repair is not proceeded with immediately.

Subd. 3. Abandoned Service Penalties. All service installations connected to the water system that have been abandoned or, for any reason, have become useless for further service shall be disconnected at the main. The owner of the premises served by this service, shall pay the cost of the excavation. The Township shall perform the actual disconnection and all pipe and appurtenances removed from the street right-of-way shall become the property of the Township. When new buildings are erected on the site of old ones, and it is desired to increase the old water service, a new permit shall be taken out and the regular tapping charge shall be made as if this were a new service. It is unlawful for any person to cause or allow any service pipe to be hammered or squeezed together at the ends to stop the flow of water, or to save expense in improperly removing such pipe from the main. Also, such improper disposition thereof shall be corrected by the Township and the cost incurred shall be borne by the person causing or allowing such work to be performed.

Subd. 4. Service Pipe. Every service pipe must be laid in such manner as to prevent rupture by settlement. The service pipe shall be placed not less than seven (7) feet below the surface in all cases so arranged as to prevent rupture and stoppage of freezing. Frozen service pipes between the main and the building shall be the responsibility by the owner. Service pipes must extend from the main to the inside of the building; or if not taken into a building, then to the hydrant or other fixtures which they are intended to supply. A valve, the same size as the service pipe, shall be placed close to the inside wall of the building, ahead of the meter and well protected from freezing. Joints on copper tubing shall be flared and kept to a minimum. Not more than one joint shall be used for a service up to seventy (70) feet in length. All joints shall be left uncovered until inspected. Minimum size connection with the water mains shall be 3/4 inch in diameter.

Subd. 5. Private Water Supplies. No water pipe of the Township water system shall be connected with any pump, well, pipe, tank, or any other device that is connected with any other source of water supply, and when such are found, the Township shall notify the owner or occupant to disconnect the same and, if not immediately done, the Township water shall be turned off. Before any new connections to the Township system are permitted, the Township shall ascertain that no cross-connections will exist when the new connection is made. When a building is connected to "Township Water" the private water supply may be used only for such purposes as the Township may allow.

Subd. 6. Prohibiting Uses and Restricted Hours. Whenever the Township shall determine that a shortage of water threatens the Township, it may entirely prohibit water use or limit the times and hours during

which water may be used from the Township water system for lawn and garden sprinkling, irrigation, car washing, air conditioning, and other uses, or either or any of them. It is unlawful for any water consumer to cause or permit water to be used in violation of such determination after public announcement thereof has been made through the news media specifically indicating the restrictions thereof.

Subd. 7. Private Fire House Connections. Owners of structures with self-contained fire protection systems may apply for and obtain permission to connect the street mains with hydrants, large pipe, and house couplings, for use in case of fire only, at their own installation expense and at such rates as the Town Board may adopt by resolution as herein provided.

Subd. 8. Opening Hydrants. It is unlawful for any person, other than members of the Fire Department or other person duly authorized by the Township, in pursuance of lawful purpose, to open any fire hydrant or attempt to draw water from the same or in any manner interfere therewith. It is also unlawful for any person so authorized to deliver or suffer to be delivered to any other person any hydrant key or wrench, except for the purposes strictly pertaining to their lawful use.

Subd. 9. Unmetered Service. Unmetered service may be provided for construction, flooding skating rinks, and any other purpose. Such service shall be at a duly adopted rate. Where it is difficult or impossible to accurately measure the amount of water taken, unmetered service may be provided and the unmetered rate applied; provided, however, that by acceptance thereof the consumer agrees to have the Township consider the use to which the water is put and the length of time of unmetered service.

Subd. 10. Water Meters. Pursuant to a contract with the City of Bemidji, and while such said contract is in force and effect, the City of Bemidji shall furnish, maintain and retain title to all customer meters, except those supplied by the EPA, and with regard to those, the City shall maintain them. In the event that the contract with the City of Bemidji aforementioned is of no force and effect, or that in the event that there is no other contract respecting the ownership or maintenance of meters, then all water meters exceeding one inch in size shall be purchased and maintained by the property owner. All repairs of water meters not resulting from normal usage shall be the responsibility of the property owner, as shall any maintenance and repair of meters which are not of the remote reading type. Any meter twenty (20) years old, or older or in need of replacement shall be replaced with a remote type which shall be purchased by the Township and shall be the maintenance responsibility of the Township. All water meters shall be installed and controlled by the Township. Any remote type meter in need of replacement by reason of normal usage shall be furnished by the Township, installed at the expense of the Township, and the Township shall thereafter own such meter.

Subd. 11. Code Requirement. All piping, connections, and appurtenances, shall be installed and performed strictly in accordance with the rules, standards, and regulations of the City of Bemidji for so long as there

is in existence the joint city water service agreement between the City of Bemidji and Northern Township and in the event that there is no such agreement, then all piping connections and appurtenances shall be installed and performed strictly in accordance with the Minnesota Plumbing Code. Failure to install or maintain the same in accordance therewith, or failure to have or permit required inspections shall, upon discovery by the Township, be an additional ground for termination of water service to any consumer.

Subd. 12. Additional Rules and Regulations. The Town Board may, by resolution, adopt such additional rules and regulations relating to placement, size and type of equipment as it, in its discretion, deems necessary or desirable. Copies of such additional rules and regulations shall be kept on file in the office of the Township Clerk, and uniformly enforced.

Subd. 13. Hookups to Township Water System Mandatory. Notwithstanding any other provisions hereunder to the contrary, all persons or property owners, the owner of every residence, business, industrial building or any other structure of any other kind within that area of the Township designated by the State of Minnesota as having polluted ground water and/or which is served by the Township water supply system shall be required to hookup to the Township water system and to use the same for all of the human consumption of water.

SECTION 6 VIOLATION A MISDEMEANOR

Every person who violates a section, subdivision, paragraph, or provision of this Ordinance when he or she performs an act thereby prohibited or declared unlawful or fails to do an act required, or fails to act when such failure is thereby prohibited or declared unlawful, and upon conviction thereof, shall be punished as and for a misdemeanor, except as otherwise stated in specific provisions hereof. Each day of non-compliance with any of the terms of this Ordinance shall be considered a separate violation and a separate criminal act.

APPENDIX C

SERVICE GROUP SUMMARY

GROUP	NUMBER of HOOKUPS	NON HOOKUPS OWNER and ADDRESS	COMMENTS
A	16	NON-RESPONSIVE	Service is into house OWNER refused hookup No meter
B	16		Service is into house OWNER refused hookup No meter
C	14		Service is into house OWNER refused hookup No meter Four (4) apartments affected
D	19		
E	17		
F	19		OWNER refused hookup No meter No service into house
G	21		17 BEMIDJI House to be torn down No service into house
			OWNER removed trailer No meter, but thermal protected service is in
H	1		Hookup in Wellhouse of Hillcrest Manor Service for approximately 100 mobile homes.
J	7		
K	11		OWNER refused hookup No meter No service into house

NON-RESPONSIVE

APPENDIX C

SERVICE GROUP SUMMARY

GROUP	NUMBER of HOOKUPS	NON HOOKUPS OWNER and ADDRESS	COMMENTS
L	21		
M	19	<div>NON-RESPONSIVE</div>	
N	17		
			Service line was installed to two buildings. Resort not open in 1989. No meters installed.

To File 8941 - Northern Township Water System Date April 13, 1990
From PAA
Subject Pre-Final Inspection of the Northern Township Water Project
April 5, 1990

PAA went to Bemidji to accompany Bill Haubold, U.S. EPA; Larry Olson, MPCA; and met with Brian Freeburg, HNTB subconsultant from Haack Engineering; Mike Kelly and Earl Gangness, Northern Township Board; Don Boell, City of Bemidji.

The attached agenda prepared by Larry Olson was basically followed for the day.

We met at Wellhouse No. 3. We were joined by Mark Balstad and Mark Hagen from Fosston Plumbing and Heating and Chuck Brackin, City of Bemidji, Supervisor/Water Department.

We discussed the remaining work and the schedule for that work with the contractors. They can not plan on outdoor work in Bemidji until after May 1st. General workmanship is very good. The City and Agencies seem pleased with the project to date. The well is producing over 1,700 gpm when the towers are low. There has been no trouble with sand.

Mark had prepared O & M manuals. They were distributed to Don Boell, Chuck Brackin, PAA and MPCA.

Larry brought the O & M manual provided by North Star Drilling. He will send the MDH form and the drilling logs to the City when he gets back to St. Paul.

Bill Haubold didn't need any additional items.

PAA gave a copy of the as-builts for Phase 2 watermain to Don Boell and to Mike Kelly. Don requested reproducibles of the entire project when it is completed. Larry Olson indicated that the reproducibles required in HNTB's contract can probably be sent to the City. He has to check on the need for those plans at the MPCA.

Mike Kelly requested a large map showing the waterlines, curb stops, fire hydrants, etc. He thinks they need it for people who want to develop land in the project area. PAA suggested that since the township has As-Built Drawings for Phase 1 and Phase 2, they have the information needed.

Mike said that the township does not have Phase 1 plans. Earl indicated that he has seen them and Kristi Miller has them. PAA had sent a blue line plan size drawing of the project area with Brian Freeburg. Mike doesn't think that's big enough for

what they want. Kristi has someone at the University who can make a larger copy of the base map. Earl indicated that the township already has what they need for their records. (Earl's term on the Northern Township board is just ending).

We then went to the Mobile Home Park wellhouse to look at the situation. There was quite a bit of discussion about ways to make sure there is no cross connection between the existing well and the new water system. Chuck Brackin indicated that the City will require that the owner issue them a key for access to the wellhouse at any time. The owner had indicated to PAA that they were having trouble with their pressure tank. There is a possibility that the owner will remove the tank. The contractor has already acquired the materials to complete this job. He will begin work in a few weeks.

We then met over lunch to discuss the Remedial Action Report. PAA had prepared a list of items to be considered for the report. The group looked at the list and made a few comments. It was decided that they would comment on the list at a later date and get back to Larry Olson or PAA with additions, corrections or deletions.

PAA will prepare an outline of the report by April 20th.

There was a discussion about a house moved onto property near Kummer's and Kevin Church's residence. Mike Kelly wanted the MPCA to write a change order to Dick Gregg's contract to include the house in the system. PAA reported on the policy followed in the field. The decision to include a property was made at the time the watermain was installed. Christiansen installed to curb stops and services to the property line. Bill Haubold elaborated on the Record of Decision (ROD). He indicated that the procedure followed in the field was correct and that changing the ROD, while not impossible, is very difficult. He would not recommend a change in the ROD.

The property owner is known as "Skinny" Mohler. The service will be fairly expensive since the curb stop would be located in a marshy area where the water table is high. Mike is concerned that Mohler will not hook-up to the water system if he has to pay for it. It will be hard to enforce the township ordinance in this case.

Mike Kelly and Don Boell left.

PAA, Bill Haubold, Larry Olson, and Brian left to check some of the installations and to drive through the project area. Haack Engineering had requested permission for us to check the installations at several homes. We went to:



File 8941 - Northern Township Water System
April 13, 1990
Page 3

NON-RESPONSIVE

All connections were made according to specifications.

Bill did not think he needed to see properties where connections had not been made.

We then went to the landfill site and met Don Boell and the project team from the MPCA who are assigned to the landfill project. The Kummers were not home.

After the meeting on the landfill site, we flew back to the Twin Cities.

PAA arranged to meet Larry and Bill at the MPCA the next day.

PAA/mst

WP/8941/PreFinal.Memo

To File 8941, Northern Township Water System Date June 20, 1990
From PAA
Subject Final Inspection

On June 18, 1990 Larry Olson representing MPCA, Pete Sanders representing EPA, and P. Arlig representing HNTB traveled to Bemidji for a FINAL inspection of the Northern Township Water System.

We went directly to Wellhouse No. 3 where we were joined by Brian Freeburg from Haack Engineering, Mark Balstad from Fosston Plumbing and Heating, Don Boell the Bemidji City Engineer, Kristi Miller the Northern Township clerk, several township bound members and one interested citizen. Throughout the day various Township Board members were involved in the inspection. The included Mike Kelley, George Coulomb, Earl Gangness, Tom Gallernealt, and Bev Wright.

Well No. 3 has been operating since February of 1990. All punch list items have been completed. The access road is completed. The area has been seeded and some grass was coming up. There are no unresolved issues on the Wellhouse. Mark submitted his FINAL Invoice to PAA. It will be reviewed and forwarded to the MPCA later this week.

We then went to the Hillcrest Manor Mobile Home Park to inspect the service at the Wellhouse there (Group H). There was some discussion about the restoration of the outside grass. The existing lawn was sparse and weedy. It was agreed that the restored area was at least as good as the original condition. There are no unresolved issues on Group H.

We then began inspections of some of Group J. We went to the Kummer residence and checked the new installation. Mrs. Kummer was glad to be on the municipal water supply.

Some of the group went over to the Lem Pierce residence. The owners were not home. We looked at the yard restoration but not inside the house.

The old Channel 26 building, now occupied by MN DNR was also inspected. The restoration at this address was fine. The installation of the service was according to the specifications.

There are no unresolved issues on Group J.

Those interested in discussion of the project met for lunch and discussed financial agreements, etc.

Final Inspection
June 20, 1990
Page 2

The Northern Township board had sent a letter to all residents in the affected area. The letter notified owners of the Final Inspection date and suggested that comments regarding the project be phoned to MPCA or letters written to arrive by June 15th.

Four calls were received by the MPCA. One regarding restoration and another regarding grainy particles which have plugged the water softeners at two lines on two occasions.

The Township received a few other calls and letters during June.

Those complaints were all on restoration of yards from already completed contracts.

We spent the rest of the day inspecting the yard restorations at those addresses for which we had received complaints. We met with property owners at several sites.;

NON-RESPONSIVE

Yard restoration in 1988. No action recommended.

This complaint had been sent earlier this month. New work alleviated the problem.

Sod was still bumpy - Owner was not available for comment.

Contractor had returned to site and done more work. Owner satisfied.

Met with him 2 times that afternoon. Problem resolved.

This yard was restored in 1988. More seeding was done in 1989. Contractor agreed to do more work at this yard.

Owner concerned about altered drainage pattern on her yard. Restoration approved 1988.

NON-RESPONSIVE

Inspection as a result of an earlier complaint. Contractor has been back to site and worked on lawn and driveway patch. The owner is satisfied.

Problem with solids smaller than sand which plugged softener on two occasions since installation in 1988. Discussed with City Engineer. It has probably happened during the time of line flushing.

The outstanding issues of concern are:

- o The Township plans to install a new water main on Irvine from the City limits north to the new water main. They need permission from the MPCA to hook into the system if it is done prior to transfer of ownership of the system.
- o The Township is concerned that obtaining easements may be difficult. They have a previous agreement with MPCA on this issue.
- o There was some discussion about ownership of the system. The township has paid a significant portion (about 1/2) of their assessment.
- o The contract between MPCA and the City of Bemidji for Operation and Maintenance has not yet been signed by the City.

Repair work on the curb stop at Hal Rieses's Birchmont address is scheduled for later this week.

The Township Board members and the residents are glad to have the homes and businesses serviced by the municipal system. They are pleased to have a safe, reliable water source.

Final inspection was completed June 18, 1990. Final invoices have been submitted by all contractors. The system repair work invoice will be submitted later this month.

PAA/dhs

Dear Water Customer,

The Minnesota Pollution Control Agency has informed us that they will be conducting a final inspection of the water system on June 18, 1990 from 10:30AM to 2:30PM. It is our feeling that you, as the connector to the system, should direct your comments or complaints regarding the connection process or restoration work to Larry Olson of the MPCA no later than June 15, 1990 so they can inspect the problem on June 18 while in town. Mr. Olson can be contacted at 612-296-7370 or by writing to Minnesota Pollution Control Agency, 520 Lafayette Rd., St. Paul, MN. 55155.

THE NORTHERN TOWNSHIP BOARD OF SUPERVISORS

NORTHERN TOWNSHIP

P.O. Box 942
Bemidji, Minnesota 56601

Dear Township Water System Customer:

A water system user's fee of \$700.00 for each customer of the Northern Township water system, was authorized by resolution of the Town Board of Supervisors on May 7, 1990. This action was taken only after careful deliberation and public hearings held by the Town Board.

The water system user's fee is authorized by Section 2 of the Northern Township Water Supply System and Utilities Ordinance and Chapter 444 of the Minnesota Statutes. It is necessary in order to assist the township in paying for its share of the costs of construction and implementation of the water system.

As you are well aware, the construction of the system was made necessary by the discovery, several years ago, of organic contaminants in groundwater supplies in the area now served by the water system. The water system construction was funded pursuant to a cost-sharing formula whereby the township paid 10% of the costs and the state and federal governments paid 90% of the costs.

You may be eligible for reimbursement of some or all of the water system user's fee. The State of Minnesota Harmful Substance Compensation Fund exists to allow residential property owners to apply for compensation of losses caused by the release of hazardous substances. Northern Township has explored this possibility on your behalf, and we have been informed by the Minnesota Harmful Substance Compensation Fund that it would be receptive to applications by Northern Township residential property owners for such reimbursement.

Information about the Harmful Substance Compensation Fund and claim forms were handed out at the April 30, 1990, public hearing held by the Township Board of Supervisors. If you have not received this information, please contact the Town Clerk, Kristi Miller, at 751-4989. We are setting up a procedure whereby all of the property owners who wish to apply to the Harmful Substance Compensation Fund can bring their application to the town hall for assistance, on July 9 or 10, 1990 between 1:30PM and 6:30PM, in completing the form and filing it with the state.

The Northern Township Board of Supervisors is not happy about having to charge the water system user's fee. However, we are trying very hard to make the charge as reasonable as possible and to assist as many property owners as possible to receive assistance from the state in paying this charge. In light of the large cost of the water system and the preservation of the many thousands of dollars you have tied up in your property, we feel that the water system user's fee is a reasonable one.

You may pay the \$700.00 user's fee, in full, by July 15, 1990 or you may opt to pay it over a 60 month period for five years at 8% per annum. The amount will be \$14.50 per month and it will be attached to your monthly water bill that you receive from the City of Bemidji.

Please indicate below your preferred method of payment by detaching the bottom of this page and returning it to Northern Township, P.O. Box 942, Bemidji, MN. 56601

Feel free to contact us if you have any questions.

Sincerely,

NORTHERN TOWNSHIP BOARD OF SUPERVISORS

detach and return

name

address

city

state

zip

- ☐ I wish to pay the \$700.00 user's fee, in full, by July 15, 1990.
- ☐ payment enclosed
- ☐ I will be paying the user's fee at a rate of \$14.50 per month, please attach the amount to my monthly water bill.

Send to: Northern Township, P.O. Box 942, Bemidji, MN. 56601

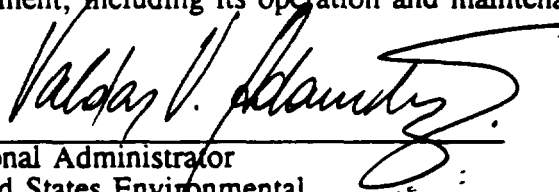
APPENDIX D-3

**TRANSFER OF OPERABLE UNIT #1 EQUIPMENT
FROM THE UNITED STATES TO NORTHERN TOWNSHIP**

WHEREAS, the United States Environmental Protection Agency (U.S. EPA) and the Minnesota Pollution Control Agency (MPCA) have certified completion of construction of the selected remedy for the first operable unit for the Kummer Sanitary Landfill Superfund site in Beltrami County, Minnesota, which is described as the "Northern Township Water System", consisting of 29,640 linear feet of watermain and appurtenances, a water supply well (No. 3), and a wellhouse (No. 3); and

WHEREAS, Northern Township has inspected said water system and agrees that the equipment meets all applicable engineering and construction standards and is fully operational;

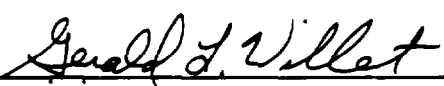
THEREFORE, pursuant to 40 CFR § 30.531, the U.S. EPA hereby transfers its rights, title and interest in said equipment comprising the Northern Township Water System to Northern Township. Northern Township hereby assumes ownership of, and responsibility for, said equipment, including its operation and maintenance.



Regional Administrator
United States Environmental
Protection Agency

Date:

9/04/91



Commissioner
Minnesota Pollution Control
Agency

Date:

8/31/90



for Northern Township

Date:

7/24/91